KITCHEN MANAGEMENT

J. O. DAHL

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KITCHEN MANAGEMENT

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Construction, Planning, Administration

By

J. O. DAHL

Director, Institutional Food Bureau; Manager, Service Department, "Restaurant Management," "Hotel Management," "Institutional Merchandising." Author, "Restaurant Management," "Business Building Ideas," "How To Sell Big Food Buyers," "One Hundred and One Ways to Build Restaurant Business."

HARPER & BROTHERS PUBLISHERS
NEW YORK AND LONDON
MCMXXVIII

43.3
R13

KITCHEN MANAGEMENT

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Printed in the U. S. A.

First Edition
F-C

643.3
D13

Home Econ. McClurg 3.75

To

MY FELLOW WORKERS

E. H. Ahrens, John Aporta, Ray Fling, Kenneth Kaull,
W. R. Needham, Donald L. Nichols, C. F. Loeffel,
Loring Pratt, James S. Warren,
George Wenzel, Grace Woolley,
and Malcolm Woolley

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6

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INTRODUCTION

Those of us who have spent an entire lifetime in the "back of the house" realize that there is a definite need for more educational books touching specifically on our everyday problems.

It is unfortunate that the men who are most familiar with the subject of kitchen management, planning, and construction are either too busy or lack the inclination to put their knowledge on paper. In my case, I have neither the time nor the inclination, but I am always willing to give my experience and knowledge to help some one else do that which I should do.

No doubt Mr. Dahl is thankful that most of us feel as we do about it. Certainly he has ample evidence of co-operation in that many of the leading kitchen authorities have given him valuable assistance. No business book has ever had so many contributions.

And the "back of the house" is a business. It's a big business. So big, in fact, that the public has no conception of its magnitude.

At times I am inclined to think that associations, and even managing executives, overlook the importance of food purchasing and preparation. To many it is a necessary evil which is gladly passed on to anyone willing to assume the detailed burden.

It should not be so. The business of purchasing foods and equipment, planning kitchens and storerooms, making the menu, and preparing delicious food to be sold at a profit is on a scientific basis in large houses. It is only a question of time until such methods will spread to smaller houses. The entire industry will profit when this takes place.

Although Mr. Dahl is still in his early thirties, he has had the pleasure of being a pioneer in the interesting job of passing on the experiences of those who have been successful at their particular jobs. His magazine articles bear evidence of his years of experience in different parts of the world. They are seldom academic, always practical, and packed with usable ideas from the best minds in the business.

His first book, *Restaurant Management,* met with a splendid reception. I understand that it is now used as a textbook in many of the leading schools and colleges of the country. Many of the most prominent chain operators put a copy into the hands of each of their managers. It has, in less than a year's time, become the restaurant owner's bible.

I predict that *Kitchen Management* will soon occupy a similar position among those who direct the activities of kitchens. It is so complete in text, illustrations and floor plans that every man or woman who has anything to do with kitchens will want a copy. Architects, kitchen engineers, manufacturers and salesmen, chefs, stewards, managers and proprietors, regardless of their knowledge and experience, will find much of interest. Without a doubt, it will take its place as the latest and most complete textbook for the man who knows and for the student who realizes that the back of the house offers unusual opportunities to the one who is willing to work hard.

R. L. Vanderslice,
Secretary, International Stewards Association.

FOREWORD

My first connection with a quantity kitchen was as dishwasher (then commonly called pearl-diver) in a three-cent lunch. It was a life-saver. I took the job only because it happened to be the quickest and most certain way for a penniless rambler to honorably satisfy the inner urge.

Nevertheless, for several years, during my spell of "the world must be seen at any price," I was in and out of dozens of kitchens from California to the Mississippi and the Gulf to Duluth—but only when hunger forced the move.

Once I remained on the same job for eight days. During that time we had five new men in our department. At the end of the third day I was the "old-timer" and so labeled by the gang. Even today the labor turnover in several hundred kitchens with which I am familiar amounts to over 415 per cent a year. This applies mostly to dishwashers, helpers, and cooks.

But my experience the past few years shows that chefs and stewards change positions more frequently than any other executives in hotels, restaurants, clubs, hospitals, and institutions.

And I was no better. It was not until I became a "front of the house" man that I realized the importance of the "back of the house." Then I learned that almost half of the hotel's income came from the sale of food. A little study showed that, next to medicine, food was the most important part of hospital service; that without good food a club could not continue to exist; that restaurants had no other source of income; and that in public institutions the kitchen was considered very important, but usually the least efficient of all departments.

Even a casual study of modern tendencies could not help but reveal two very interesting trends:

(1) that toward group living in hotels, clubs, etc., and eating more meals in public dining rooms.

(2) shortage of practically trained kitchen executives and the lack of interest among American young men in taking advantage of this shortage.

Here, then, at my very door, was a huge, growing business practically unknown outside of the industry—a food business next in importance to that of the home kitchen. Figures showed that in these kitchens were prepared 18 per cent (now 21 per cent) of all meals eaten in the United States.

That was six years ago. Since, I have spent much time and given a good deal of thought to the problems of quantity kitchens.

Most of the preliminary work had to be done from the ground up. There was no foundation of educational material in the English language. It has not been until the last three years that institutional publications have tried to do more than print kitchen hokum.

Successful chefs, stewards, and kitchen engineers are more concerned with doing a good job than writing about it. I am most interested in writing about those who do a good job. So, we have been able to work together, we hope, to the advantage of the industry.

I have interviewed hundreds of chefs, stewards, managers, and kitchen experts. I have studied their kitchens and many others. My files have been jammed with clippings, catalogues, and correspondence with those who know more about the subject than I do. The material has been boiled down and poured into this book.

I have had to touch lightly on some subjects and leave out many others. I have tried to cover in greatest detail the subjects about which the least is known. Also I have presupposed a knowledge of some kitchen practice and food buying because they are subjects for a library rather than a single volume.

In my first book, *Restaurant Management,* I credited the persons and sources of my information. I am doing so again because it is right that they should have the credit. Also it is the only way I have of showing my appreciation for this courtesy and consideration.

I am deeply indebted to L. M. Boomer, E. C. Fogg, E. M. Statler, Ralph Hitz, Theodore De Witt, Roy Carruthers, D. M. Linnard, H. A. Rogers, Charles Roth, Walter Gregory, J. O. Mills, Earl Thornton, Horace L. Wiggins, A. Frank, Eric V. Hauser, L. M. Davenport, C. H. Parker and Geo. Stoughton for the privilege of spending time in their kitchens.

Some of the best material in this book was gathered during the eighteen months spent studying European hotels and restaurants. For this information I owe much to Louis Adlon, Adlon Hotels, Berlin, Germany; Henri Armbruster, Hotel Plaza-Athenee, Paris, France; Georges Barrier, Continental Hotel, Paris, France; Hans Bon, Suvretta House, St. Moritz, Switzerland; Alfred Brenner, Brenner Hotels, Baden Baden, Germany; Charles F. Butticaz, Hotel Alexandra Grande, Lausanne, Switzerland; Henri Dequis, Hotel Crillon, Paris, France; M. Farmer, Cecil Hotel, London, England; Marcel Gautier, Vendome Hotel, Paris, France; A. Graedel, Savoy Hotel, London, England; Alfred

Janssen, Kulm Hotels, St. Moritz, Switzerland; Ewald Kretschmar, Adlon Hotels, Berlin, Germany; Th. Nico Van Stigt, Hotel Des Pays-Bas, Utrecht, Holland; L. G. Rossignoli, Splendide Hotel, Aix-les-Bains, France; L. Silenzi, U. N. I. T. I. Hotels, Home Office, Rome, Italy; H. Thomas, Hyde Park Hotel, London, England; Maurice Weiser, Grand Hotel Cosmopolite, Liege, Belgium; Eldorado Zammaretti, Majestic Hotel Diana, Milan, Italy.

To this European list should be added the officials of the London and Northeastern Railway, who gave me every opportunity to study the kitchens in their hotels in Glasgow, Edinburgh, and other cities in Scotland.

Practically all accounting material, forms, system charts, costs, etc., are the courtesy of E. B. and E. J. Horwath, the officers of the company, and many of their resident accountants. Their valuable house organ, *The Alarm Clock,* is quoted frequently.

The following chefs, stewards, managers, architects, teachers, and kitchen experts have contributed to the book:

H. A. Allen; B. Allevi; Samuel D. Adkisson; Ernest Amiet; Martha Adams; Asa Bacon; Edith Barber; R. G. Brodrick, M.D.; Charles Bournez; S. Bochetti; J. Berghin; Harry J. Boekenhoff; Stanley Barnaby; Linda Spence Brown; Robert Blackman; Paul Bentz; Pierre Berard; Ruth Bowden, B.S.; Mary Barber; Alice Bradley; Elizabeth H. Bohn; Knute Bjkorlund; L. J. Button; George Baker; Theodore E. Beyer; George H. Becker; Arthur E. Burlew; Daniel W. Barbier; Peter Borras; U. R. Bliss; Roger Cretaux; W. W. Crawford; Kathleen Crowley; Edouard Chmelar; Ray Clark; R. P. Crist; Herbert O. Collins, M.D.; Nell Clausen; Frank

D. Chase, C.E.; J. F. Carney; Crete M. Cochrun; P. K. Collins; C. E. Clinton; W. W. Downey; A. W. Dunlap; H. G. Devlin; Jaque Darricade; Louis Diat; Irvin S. Dolk; Leony C. Derouet; Edward G. Dow, M.E.; Dennis Decaillet; Nils Eliason; R. B. Ellifritz; Louis Ergas; Mathew O. Foley; Miss Mary Foley; C. J. Fitzpatrick; J. J. Ferguson; Oscar Fritche; Alfred Fabre; John Edward Frawley; Lulu G. Graves; Agnes Gleason, Breta Griem; John Dismukes Green; Myron Green; Louis M. Gund; J. Gancel; Marion Gilmore; S. Margaret Gillam; Otto E. Goldschmidt; Martin F. Grady; M. De Gregorio; W. M. Gaffney; Wm. Gilmore; Henri Gouvin; E. C. Hayfield; Emory Hawcock; C. G. Holden; Edgar C. Hayhow, B.C.S.; Elizabeth W. Hayward; Henri Hausli; Frederick Howe; L. S. Hawkins; W. I. Hamilton; J. L. Hennessy; Ford Harvey; Sarah Hickcox, M.S.; Alice Huston; Gottfried O. G. Hagman; E. A. Hart; C. M. Hass; F. L. Harmes; Robert G. Jahrling; Ambroise Jensen; Jim Johnson; Helen L. Johnson; R. L. James; A. R. Kurtz; Theodore Kemm; Fred Kast; Otto Klein; Henry E. Kuhlmann; J. J. Kaler; F. R. Low; Christ Laube; William T. Loud; Al Leimbacher; W. Lindley; J. Robert Lyon; John Lammons; Edward Mathieu; Gladys McCarthy; J. O. Mills; Joseph Mack; Duff G. Maynard; Thomas McEnroe; Emil Micheau; J. J. Meloney; Adolphe Meyer; A. E. Merrill; John McNamara; Paul Mueller; C. W. Munger, M.D.; Fortunat Mann; Helen Murphy; Marion H. Manzer; J. S. Mack; W. P. Maples; Ernest A. Mertz; E. P. Moser; Joseph Meier; H. B. Meek; W. R. Needham; F. Nedchen; Werner Nygren; Charles F. Neergaard; E. H. Nies; Robert C. Nason; Paul Nasse; Wm. C. Norcross; Edward G. Ohmer; Edouard Panchard; John Plesch;

Meyer Paley; L. E. Pierce; Louis Paquet; Angeline Phillips, B.S.; Sister Patricia, R.N.; Jean Pilloy; P. Pini; F. Person; S. I. Park; John Plesch; P. C. Quintard; Charles Reidinger; J. G. Riesener; C. H. Rich; W. R. Richter; Jean Rome; Arthur L. Roberts; Robert D. Regan; Frank H. Randolph; Charles M. Ripley; F. B. Riley; George Rector; Maurice Riquet; B. J. Robertson; Fred Rothery; George M. Stoughton; W. L. Stoddard; H. R. Schaufert; Albert Stalle; Arnold Shircliffe; W. T. Schumaker; A. K. Snyder; Frank Schmitt; J. Tennyson Sellers; Otto Schotz; A. Lincoln Scott; W. H. Spaulding; B. A. Sunde; Mary A. Steward; W. T. Smith; Carl Stander; Betty Shelly; P. P. Sorenson; C. E. Snyder; Albert P. Stalle; C. Stanley Taylor; Paul Tepffer; Gaston P. Thierry; E. L. Thornton; R. L. Vanderslice; J. L. Vernet; Wallace Vail; W. Vanderbush; L. H. Vanderslice; Inez Searles Willson; Oscar Wintrab; Carl Wawra; Sherman Woolley; M. E. Woolley; Horace Leland Wiggins; Harry M. Wing; G. G. White; C. A. Wood; Herman Wolfe; Maurice Wolf; Millicent Yackey.

A well-known steward once told me that salesmen had taught him a great deal about buying and caring for equipment and supplies. I am indebted to the following companies for such information:

Adam Co., Hector C., New York, N. Y.; Aluminum Cooking Utensil Co., New Kensington, Pa.; American Carbonic Machinery Co., Wisconsin Rapids, Wis.; American Gas Assoc., New York, N. Y.; American Laundry Machinery Co., Cincinnati, Ohio; Anstice & Co., Josiah, Rochester, N. Y.; Automatic Refrigerating Co., Hartford, Conn.; Benedict Mfg. Co., E. Liverpool, N. J.; Berle Mfg. Co., Davenport, Ia.; Bishop & Babcock, Cleveland, Ohio; Blodgett Co., Inc., G. S., Burlington, Vt.; Bramhall Dean Co., New York, N. Y.; Buell Co., B. B., Seattle, Wash.; Buffalo Forge Co., Buffalo, N. Y.; California Fruit Growers Exchange, Chicago, Ill.; Champion Dishwashing Machine Co., Hoboken, N. J.; Chromium Corp. of America, New York, N. Y.; Colson Co., Elyria, Ohio; Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.; Crane Co., Chicago, Ill.; Crescent Washing Machine Co., Troy, Ohio; Curtis Lighting, Inc., Chicago, Ill.; Davenport Mfg. Co., Davenport, Ia.; Despatch Electric Oven Co., Minneapolis, Minn.; Dohrmann Hotel Supply Co., San Francisco, Calif.; Dougherty, Wm. F., Philadelphia, Pa.; Duparquet-Huoat-Moneuse Co., New York, N. Y.; DuPont De Nemours, E. I., Philadelphia, Pa.; Economic Laboratory, Inc., St. Paul, Minn.; Edison Electric Appliance Co., Chicago, Ill.; Edison Lamp Works, Newark, N. J.; Egyptian Lacquer Mfg. Co., New York, N. Y.; Electric Maid Bake Shop, St. Paul, Minn.; Electrical Refrigeration News, Detroit, Mich.; Fearless Dishwashing Co., Rochester, N. Y.; Ford Co., J. B., Wyandotte, Mich.; Fraunfelter China Co., Zanesville, Ohio; Frigidaire Co., Dayton, Ohio; Frink Co., New York, N. Y.; Fyr-Fyter Co., Dayton, Ohio; General Electric Ventilating Co., Schenectady, N. Y.; General Gas Light Co., Kalamazoo, Mich.; General Refrigeration Co., Beloit, Wis.; Glidden Co., Cleveland, Ohio; Gloekler, Bernard, Pittsburgh, Pa.; Goder Incinerator, Chicago, Ill.; Gorham Co., New York, N. Y.; Griswold Mfg. Co., Erie, Pa.; Hall China Co., E. Liverpool, Ohio; Harrison & Henderson, New York, N. Y.; Hazel-Atlas Glass Co., Wheeling, W. Va.; Hobart Mfg. Co., Troy, Ohio; Hurley Machine Co., Chicago, Ill.; I. L. G. Electric Ventilating Co., Chicago, Ill.; International Business Machine Co., New York, N. Y.; International Nickel Co., New York, N. Y.; International Silver Co., New York, N. Y.; Iroquois China Co., Syracuse, N. Y.; Jewett Refrigerator Co., Buffalo, N. Y.; Joesting & Schilling Co., St. Paul, Minn.; Kelvinator Co., Toledo, Ohio; Kernator Co., New York, N. Y.; Libby Glass Mfg. Co., New York, N. Y.; Liquid Carbonic Co., Chicago, Ill.; Loud Speaker Corp., New York, N. Y.; McCray Refrigerator Co., Kendallville, Ind.; Michigan Stove Co., Detroit, Mich.; Milwaukee Lace Paper Co., Milwaukee, Wis.; Mitchell Woodbury Co., Boston, Mass.; Morandi-Proctor, Boston, Mass.; Morse-Boulger Destructor Co., New York, N. Y.; Murray Co., Edgar A., Detroit, Mich.; National Lamp Works, Cleveland, Ohio; National Lead Co., New York, N. Y.; No-Klok Mfg. Co., New York, N. Y.; Northern Equipment Supply Co., Minneapolis, Minn.; Oakite Products Co., New York, N. Y.; Olson & Co., Samuel, Chicago, Ill.; Onondaga Pottery Co., Syracuse, N. Y.; Perfect Automatic Egg Timer Co., Chicago, Ill.; Permutit Co., New York, N. Y.; Pick-Barth Co., New York, N. Y., Chicago, Ill.; Procter & Gamble, Cincinnati, Ohio; Ransom Barton Co., Philadelphia, Pa.; Ray Oil Burner Co., San Francisco, Calif.; Read Machinery Co., York, Pa.; Reol Refrigerator Co., Baltimore, Md.; Reynolds Electric Co., Chicago, Ill.; Rome Mfg. Co., Rome, N. Y.; Russell & Watson, Buffalo, N. Y.; Ruud Hot Water Heater Co., Pittsburgh, Pa.; Safety Car Heating & Lighting Co., New York, N. Y.; Scammell China Co., Trenton, N. J.; Schiller & Son, Arthur, Chicago, Ill.; Sedgwick Machine Co., New York, N. Y.; Smith Sons, John E., Buffalo, N. Y.; Society for Electrical Development, New York,

N. Y.; Solar Sturges Mfg. Co., Melrose Park, Ill.; Standard Conveyor Co., St. Paul, Minn.; Standard Gas & Equipment Co., New York, N. Y.; Standard Oil Co., New York, N. Y.; Strite Anderson Co., Minneapolis, Minn.; Telautograph Co., New York, N. Y.; U. S. Gutta Percha Paint Co., Providence, R. I.; Van Range Co., John, Cincinnati, Ohio; Victor Special Machine Co., Trenton, N. J.; Walker Kitchen Utensil Co., Syracuse, N. Y.; Wallace & Sons Mfg. Co., R., Wallingford, Conn.; Waters Genter Co., Minneapolis, Minn.; Wayne Tank & Pump Co., Ft. Wayne, Ind.; Wells Mfg. Co., San Francisco, Calif.; Westinghouse Electric, Mansfield, Ohio; White Mop Wringer Co., Fultonville, N. Y.; Wonder Electric Appliance Corp., Baltimore, Md.; Wright Co., Atlanta, Ga.; Wrought Iron Range Co., St. Louis, Mo.; Zahner Mfg. Co., Kansas City, Mo.; Zapon Co., New York, N. Y.

J. O. Dahl

New York City

KITCHEN MANAGEMENT

KITCHEN MANAGEMENT

CHAPTER I

PLANNING THE MODERN KITCHEN

ONLY forty-nine of the several hundred kitchens in which I have worked or studied are over 90 per cent efficient in construction and layout. This applies to new as well as old kitchens. This low percentage of efficiency is a sad—also an expensive—condition. Production costs cannot be kept at a minimum, nor service at the highest point of efficiency, unless the kitchen is laid out with both of these factors in mind.

Laxness. And there is a reason for this laxness. Far too many kitchens are being put into rooms which were not designed for practical operation. Then, to make matters worse, the kitchen is often laid out by one who knows as little about food service and preparation as the person who designed the room. Between the two, they make it impossible, even with the most scientific management, to operate economically and efficiently.

Kitchens should be designed by a group made up of the architect, the executives who are to operate the kitchen, the supply-house engineer, and the manager. And this should be done while the building is still on paper. The institution should be planned around the kitchens. They should receive first consideration because this department can make or break a house. Any old room will not do for the kitchen.

The factory (kitchen) must be efficiently and economically planned or else the finished products (food dishes) cannot be sold at a profit. And it is necessary to do this. In the average hotel 47 per cent of the income comes from the sale of food. Restaurants have little else to sell. In many hospitals the heaviest expense is in the food department. Kitchens in public institutions are

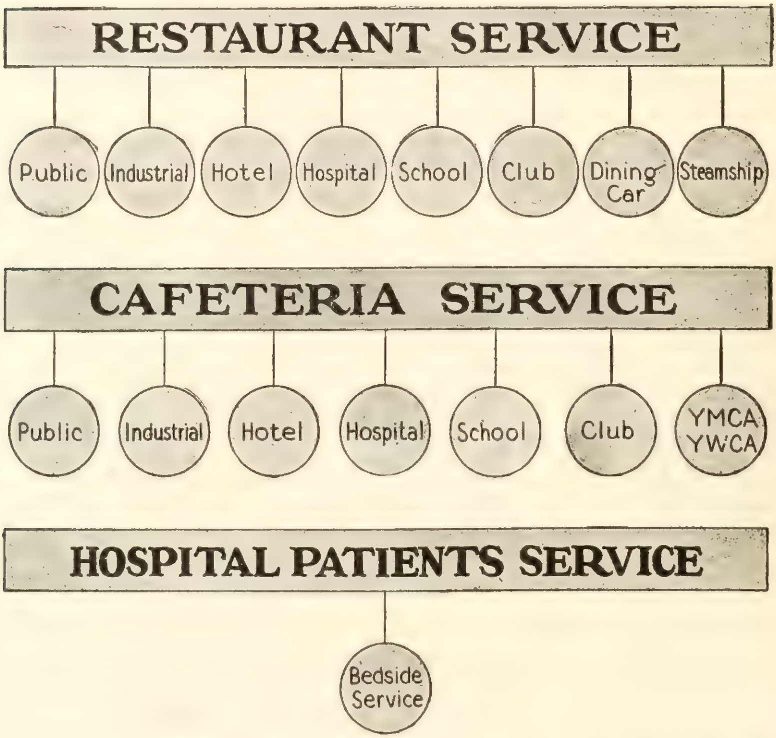


Fig. 1. The *Management Magazine's* outline of the field for kitchen management. This does not include opportunities with architects, engineers, manufacturers, jobbers, magazines, and as teachers and writers.

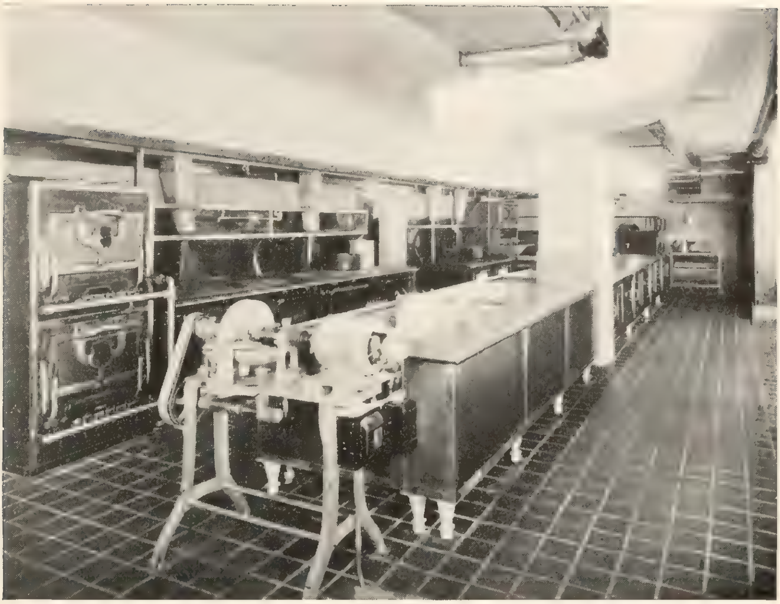


Plate 1. Food choppers, mixers, slicers, and parers have proved their worth in the modern kitchen.

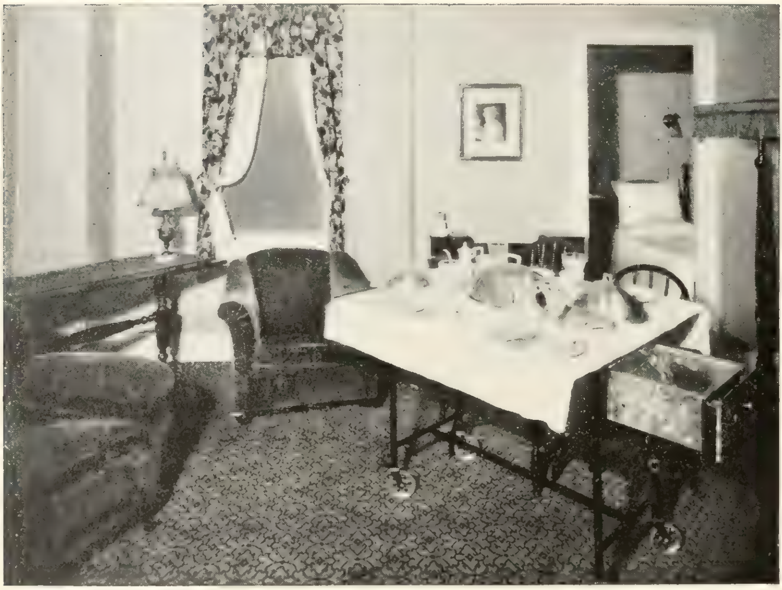


Plate 2. This heavily insulated, electrically-heated room-service cart is finding favor in hotels. Special models are being made for hospitals and for use in cafeterias to take the place of steam tables. Special models are also made for window displays of food and for keeping rolls warm all through the day.

usually very poorly planned. They do not have to return a profit and each additional employee is another vote. It would be safe to estimate that almost any institutional kitchen could be operated just as efficiently with a lower payroll.

Research. Kitchens should not be designed until every factor has been considered. Then the house should be designed around the kitchens. The reverse is usually the case.

Size and location are the most important points to be considered. The size can be estimated only after a study of the food-service requirements; the number of dining rooms; the kinds of dining rooms (formal, coffee shop, cafeteria, tea room, fountain, banquet rooms, etc.), number of people to be served each meal, and provisions for possible expansion of business. In hotels and restaurants, kitchens usually occupy about 25 per cent as much space as that allotted to the dining room. Following are typical examples of floor space required:

HOTEL

SERVING	FLOOR SPACE REQUIRED
100 meals per day	450— 600 square feet
200 " " "	700— 900 " "
500 " " "	1,000—1,500 " "
1,000 " " "	2,000—2,500 " "
3,000 " " "	3,000—4,000 " "
6,000 " " "	7,000—8,000 " "

HOSPITAL

100 " " "	500— 600 " "
250 " " "	650— 750 " "
500 " " "	750—1,000 " "
1,000 " " "	1,500—2,500 " "

INDUSTRIAL CAFETERIA

(Noon meal only)

SERVING	FLOOR SPACE REQUIRED
500 persons per meal	1,000—1,500 square feet
1,000 “ “ “	2,500—3,000 “ “

LUNCH COUNTER

300 “ “ day	300— 500 “ “
750 “ “ “	900—1,100 “ “

CAFETERIA

1,600 “ “ “	1,500 “ “

TEA ROOM

150 meals “ “	150 “ “
225 “ “ “	450 “ “
575 “ “ “	1,100 “ “
1,200 “ “ “	1,800 “ “

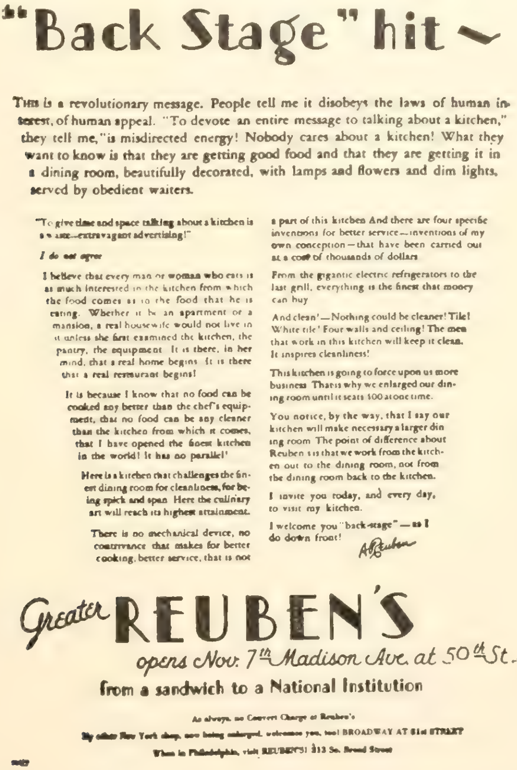
Service for *table d'hôte* requires less kitchen space than that for *à la carte.* Lunch rooms, cafeterias, and coffee shops do not have kitchens as large as those in formal restaurants and hotels. If some food is prepared in the dining room, or if waiters do not need to go into the kitchen much less space is needed.

Much room-service business requires additional space, especially at the point where tables are to be set up. The tendency is decidedly away from distant service kitchens. Modern methods make it possible to keep food warm and transport it quickly.

It is advisable to have departments housed in separate rooms. By this I mean the pantry, bakery, butcher shop, dish-washing department, etc. The upper part of partitions may be made of heavy mesh wire so that each room is well ventilated. Much time can be saved if washrooms and toilets are on the kitchen level.

It is obvious that quantity cooking requires less space than for individual preparation.

Before the kitchen is planned it is necessary to decide whether or not a bakery or butcher shop is to be operated.



"Back Stage" hit ~

THIS is a revolutionary message. People tell me it disobeys the laws of human interest, of human appeal. "To devote an entire message to talking about a kitchen," they tell me, "is misdirected energy! Nobody cares about a kitchen! What they want to know is that they are getting good food and that they are getting it in a dining room, beautifully decorated, with lamps and flowers and dim lights, served by obedient waiters.

"To give time and space talking about a kitchen is a waste—extravagant advertising!"

I do not agree

I believe that every man or woman who eats is as much interested in the kitchen from which the food comes as in the food that he is eating. Whether it be an apartment or a mansion, a real housewife would not live in it unless she first examined the kitchen, the pantry, the equipment. It is there, in her mind, that a real home begins. It is there that a real restaurant begins!

It is because I know that no food can be cooked any better than the chef's equipment, that no food can be any cleaner than the kitchen from which it comes, that I have opened the finest kitchen in the world! It has no parallel!

Here is a kitchen that challenges the finest dining room for cleanliness, for being spick and span. Here the culinary art will reach its highest attainment.

There is no mechanical device, no contrivance that makes for better cooking, better service, that is not a part of this kitchen. And there are four specific inventions for better service—inventions of my own conception—that have been carried out at a cost of thousands of dollars.

From the gigantic electric refrigerators to the last grill, everything is the finest that money can buy.

And clean!—Nothing could be cleaner! Tile! White tile! Four walls and ceiling! The men that work in this kitchen will keep it clean. It inspires cleanliness!

This kitchen is going to force upon us more business. That is why we enlarged our dining room until it seats 500 at one time.

You notice, by the way, that I say our kitchen will make necessary a larger dining room. The point of difference about Reuben's is that we work from the kitchen out to the dining room, not from the dining room back to the kitchen.

I invite you today, and every day, to visit my kitchen.

I welcome you "back-stage"—as I do down front!

A Reuben

Greater REUBEN'S
opens Nov. 7th Madison Ave. at 50th St.

from a sandwich to a National Institution

As always, no Couvert Charge at Reuben's

My other New York shop, now being enlarged, welcomes you, too! BROADWAY AT 81st STREET

When in Philadelphia, visit REUBEN'S! 313 So. Broad Street

Fig. 2. Mr. Reuben spent several thousand dollars for full page advertisements in New York newspapers to feature his new kitchen. Read his story directed to the public. It indicates a trend that should be of interest to every one who has anything to do with feeding people in large numbers.

It is usually economical to have both departments in kitchens handling three hundred or more meals a day. A bakery is an economy for all types and sizes of institutions.

Location. The best chefs and stewards agree that the kitchen should be on the same floor with the dining room. They also agree that the two should be together. Each additional step, made necessary by inefficient layout, costs money and slows up service.

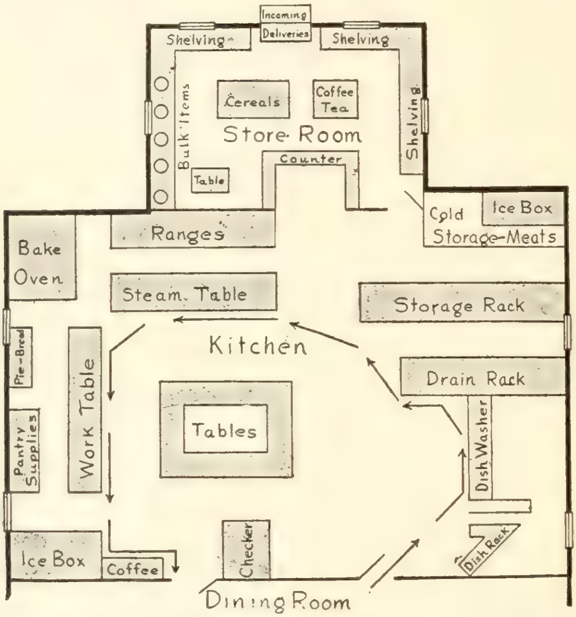


Fig. 3. This plan illustrates the principle of kitchen layout. There must be no retracing of steps while the waiter assembles his order. The ideal storeroom is on the same floor as the kitchen.

If possible, the storeroom should be on the same floor as the kitchen, and located close to it. If there is not space enough for a larger storeroom, then by all means make provisions for the storage, in the kitchen, of supplies used most generally. This saves time during rush hours when it is most valuable.

An analysis, made by a friend who is steward of a California hotel, showed that each waiter made an average of 15,000 steps during the day, on the way to and from the kitchen. If the kitchen and dining room had been designed properly, each waiter could have saved 2,500 steps. The total saving in this dining room would have been enough to get along with two waiters less—a direct saving of at least $1,800 a year. This is but one example of the day-in-and-day-out expense of poorly planned kitchens. Another example is that of having a square or oblong kitchen, with a dining room of the reverse size. Plans should always be made so that the distance from the farthest part of the dining room can be kept at a minimum. An oblong kitchen and an oblong dining room, placed end to end, is usually the most inefficient of all layouts.

Construction. Kitchens should be fireproof. If possible, they should have outside exposure. Ceilings should never be less than twelve feet, and preferably eighteen feet, in height. According to C. Stanley Taylor, a nationally known consultant, the following materials can be used for kitchen flooring:

Flooring. Excellent: vitrified tile, terazzo, red quarry or Welch tile.

Reasonably good: Cement tile.

Can be used with discretion: Slate tile, special composition, linoleum, tile, or strips of soft wood painted.

Do not use: Marble (tile or slab), clay tile, rubber tile, or strips, cork compositions.

Light gray and red seem to be the most popular colors.

Personally, I like a hard maple or a steel mat in front of the ranges. This can be laid as a runner.

All corners in the kitchen should be rounded, so that there is no place for dirt or vermin. The floor should incline slightly to floor drains (from three to five inches in size) that are equipped with traps for easy draining. With such construction, the floors can be flooded with boiling water and flushed with a hose from convenient outlets. All wall corners where trucking is done should be protected with heavy iron plates, to extend at least three inches on each side of the corner. It is impossible to keep truckers from bumping into corner walls. Without iron protection, these will need constant repairing.

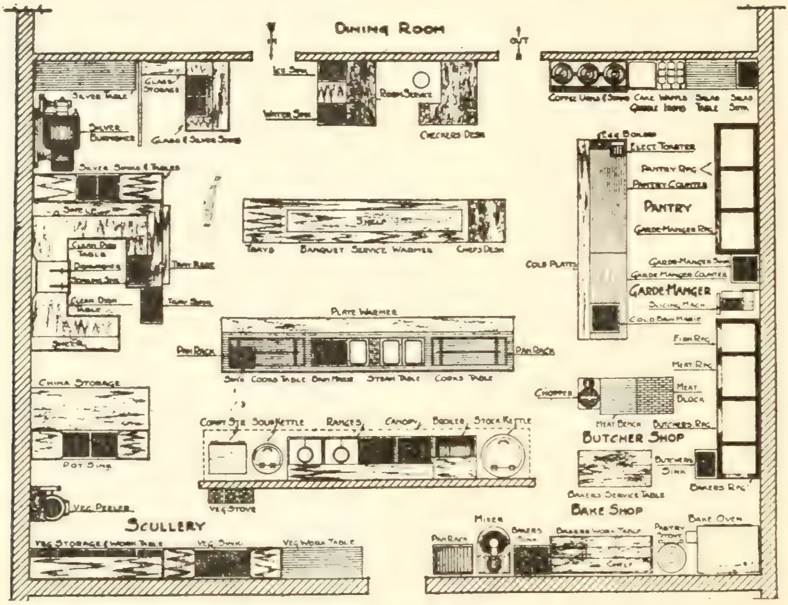


Fig. 4. Study of a kitchen for a 250-room European plan hotel. This was planned by the St. Louis Stewards' Club. It is an excellent plan for students to work along similar lines—and then have practical men or women criticize the plans.

Walls. Enameled brick, white tile, and enameled walls lead in popularity. Many kitchens are tiled to the ceiling, but most of them have it halfway to the ceiling. The balance is white enameled.

Lacquered walls and ceilings are becoming popular.

By the use of a spray gun the entire room can be lacquered in an hour or two, and it dries in less than an hour. This is ideal for kitchens where service must be maintained without interruption. Kitchens are usually painted once every two years.

Color is beginning to find its way into kitchens. There is every reason why kitchens should be more colorful. At its best, kitchen work is difficult and trying. Colors, if properly chosen, are soothing and stimulating. The following table showing the reflective value of colors shows the danger of using too much color, at the loss of good lighting.

Colors	*Reflecting Value*
White gloss	84 per cent
Flat white	82 "
White eggshell	81 "
Ivory white	79 "
Silver gray	75 "
Cream	74 "
Pink	72 "
Ivory tan	67 "
Light green	63 "
Light gray	58 "
Buff	55 "
Light blue	54 "

Other valuable features regarding kitchen construction are:

Have corridor ceilings high enough so that tall waiters can walk with trays held high over their heads.

Windows should be of steel and of the factory type that can be swung open for easy cleaning.

Doors and frames should be of metal.

Door knobs should be high enough so that doors can be opened easily by employees with their arms full. Do not use two way doors unless these have glass windows so that traffic can be seen from both sides. Where double doors are used, each should be painted, in large letters, with the word "In" or "Out." Where many foreigners are employed it may be necessary to use such signs in several languages.

Sound-proof construction should be used between kitchens and dining rooms. In some cases two sets of doors will keep out the noise. Then again, it can be muffled by the use of deadening materials on the ceilings.

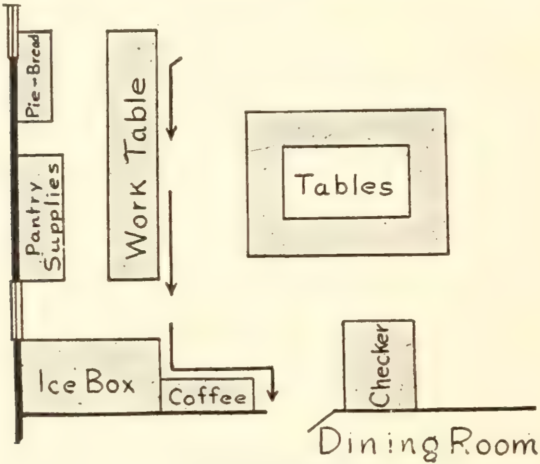


Fig. 5. A small but efficient club pantry.

Brass pipe should be used for all hot and cold water lines.

All pipes should be painted in different colors, so that employees know what each pipe is for.

All doors should be extra wide and high.

Efficiency. An efficient kitchen is one in which each employee takes the fewest possible steps and where everything is in logical order. The soiled-dish table should be near the entrance and the clean-dish service counter, pantry, and urns in the semicircle that leads back into the dining room. There should be no crossing of routes. It should be possible for waiters to pick up their orders quickly, conveniently, and without retracing their steps, and to reach the service counter, pantry, or urns without getting in the way of other waiters. This is possible when each service station is placed properly. Associated divisions in the kitchen should be side by side so as to save the kitchen workers time.

Doors to the dining room and outside doors through which merchandise is delivered to the kitchen or storeroom, must be placed so that the least number of steps is necessary to reach the service tables or the storeroom. The same is true of stairs which lead to the basement. Delivery of food from the basement to the kitchen should not interfere with normal traffic in the dining room.

Storeroom. If this is in the basement it must be located conveniently to the doors through which merchandise is delivered, and also to the stairs leading to the kitchen. If the storeroom is located on the same floor as the kitchen, it is necessary to see that traffic to and from it does not interfere with the waiters.

Large institutions can use overhead conveyors and carriers to good advantage.

The storeroom should be a cool, well-ventilated room. If possible, use concrete and steel in storerooms. Another important feature in connection with the planning of a storeroom is that of having the scales located conveniently for the weighing of all the merchandise received from merchants and issued to the kitchen.

Pantry. This room should be as close as possible to the dining-room entrance. There should be space enough in it for storage, refrigerators, work tables, sinks, urns, and such machines and utensils as are necessary for the production of whatever dishes you expect to serve from it. Urns may be in or outside the pantry, depending on whether or not waiters are to draw their own beverages. From this it is obvious that you must know how much you are going to serve from the pantry before you can determine its most efficient size.

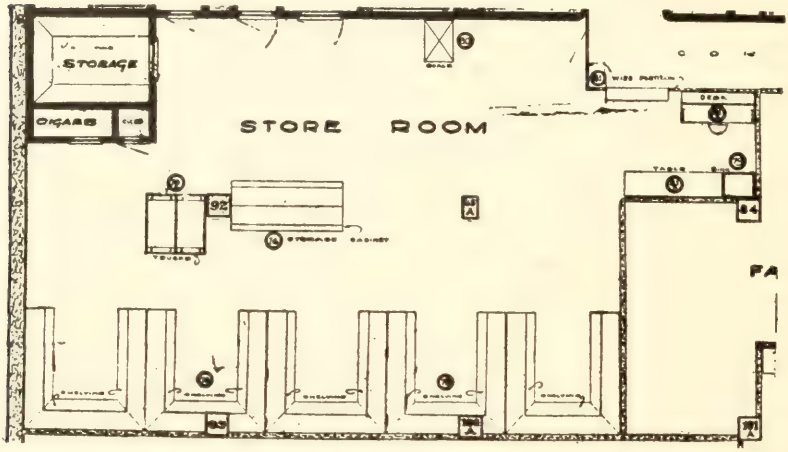


Fig. 6. Storeroom in a large hotel. Note the humidor for cigars and tobacco. Many hotels now own and operate the cigar stands.

Dish-washing and Silver-washing Departments. This department must be compact without being crowded. A crowded condition makes for greater breakage and more noise. Both of these are expensive in cash and good will. Remember that the sooner your bus boys or waiters can deposit soiled dishes the less it costs to handle them. Conveying and subveying machinery saves money. Remember, too, that the noise, steam, and odors from this department must be kept out of the dining room and, if possible, out of the kitchen also. For these reasons many authorities agree that the dish-washing department should be housed in a special room with adequate ventilation and sound-proof walls and ceilings.

The interior layout of this department should be such that dishes, silver, and glasses can be cleaned with the fewest possible motions. It is also necessary to provide sufficient space for their storage after they have been cleaned. Make it easy for cooks and waiters to get the dishes they need.

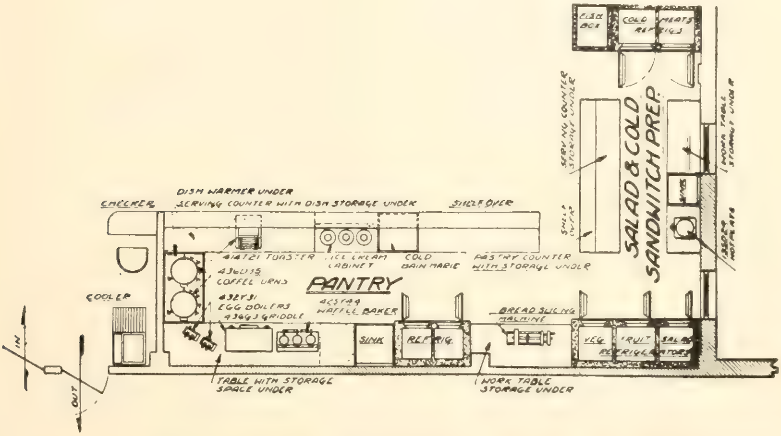


Fig. 7. Another pantry conveniently next to the dining room. It is compactly but efficiently laid out. A place for everything and everything in its place.

The pot-washing department must be convenient to the ranges—the source of soiled pots.

Clean-dish storage should be close to the dishwasher, cooks' station, and waiters' supply. If this is impossible, a truck will solve the problem of transportation.

Chef's Office. If your chef has to be more than a cook, he must have an office. It should be located so that he can view the entire kitchen. It need not be large, but there should be room enough for a steel desk, two chairs, and a steel file. If possible, provide space enough for a bookcase and a rack in which he can keep the latest literature covering his specific duties.

Washroom. Every kitchen should have a washroom on the same floor, with additional facilities for toilets, shower baths, and lockers in the basement. Kitchen washrooms should be furnished with pure soap in dispensers, and paper towels. It doesn't pay to take a chance when the public's health is dependent upon the sanitation of your cooks. First-aid equipment can be kept in the washroom also.

Employees' Dining Rooms. These must be planned for comfort and sanitation. In some hotels there are separate dining rooms for cooks, maids, kitchen employees, office employees, and officers. In hospitals there are special rooms for kitchen employees, nurses, doctors, etc. The architect must know the policy before planning dining rooms for employees.

Ranges. In most American kitchens ranges are installed against the walls, whereas in the French kitchens they are usually in the center of the room, with work tables on all sides. The latter is an ideal arrangement if the problem of ventilation can be solved.

Much thought must be given to the number of ranges needed to take care of the peak load and also for possible enlargement of the dining-room space. I know several managers who cannot increase their volume of business because the kitchen is too small for additional ranges.

Centering around the ranges must be broilers, steam kettles, steam tables, work tables, vegetable sinks, meat blocks, utensil storage, dish storage, and special machines. Here, too, one must plan to have everything close to the point at which it is to be used. It should be possible for the cook to get 90 per cent of what he needs without taking more than two steps. Insofar as possible, plan to have each station completely equipped with the small things every cook needs.

Refrigerators. There are two schools of thought regarding the location of ice boxes—those who believe in one or two large boxes centralized, and those who suggest as many small boxes as are necessary to serve each group of users. I agree with the latter group because with automatic refrigeration there is not the inconvenience we formerly experienced in handling ice. It should not be necessary for cooks to walk more than a few feet to an ice box, nor for the bakers to go outside their department for ice-box service. A large box is usually a good investment for the pantry, and a smaller box—and a more decorative one—has a definite place in the dining room for the storage of sauces and the like.

It is obvious that the *checker's stand,* if a checker is used, should be located conveniently for speedy checking without causing congestion at the entrance, nor should anything else interfere with the orderly or speedy procession of the waiters from the back to the dining rooms.

I have yet to see or hear of a "perfect kitchen," because no two practical operators agree on what makes a perfect kitchen. Regardless of this, I believe that it is advisable to strive for perfection by calling in, as advisors, those who know how a kitchen should be laid out. Certainly the chef and steward should be employed far enough in advance so that they can check the kitchen plan with the manager and the architect. This will prevent many of the expensive errors made by some architects who do not understand kitchen layout.

But this is not always possible; in which event one of the best ways to lay out the kitchen is to use small pieces of cardboard to represent each piece of equipment which you know is necessary for the kitchen you have in mind. Have each piece true to scale and marked with the name of the equipment it represents. Then draw, to the same scale, the outline of the space available for your kitchen. With this outline before you, and your cardboard models representing your equipment, you can move them about until you know just where each piece of equipment should prove most satisfactory. While doing this you must, of course, keep in mind the kind of service you expect to give and the number of employees you need to render this service.

But, regardless of how you proceed, you must bear in mind the absolute necessity for a layout that will give you the greatest possible economy of labor, time, and materials—taking into consideration the quality and selling prices of your food. Test all your ideas by this simple rule.

CHAPTER II

THE IDEAL PANTRY

The pantry is rapidly becoming the most important part of a kitchen. With the decided tendency toward the eating of specialty foods, package goods, fruits, salads, sandwiches, ice cream, fruit juices, waffles, milk, and eggs, it becomes all the more evident that the pantry must be laid out for efficiency.

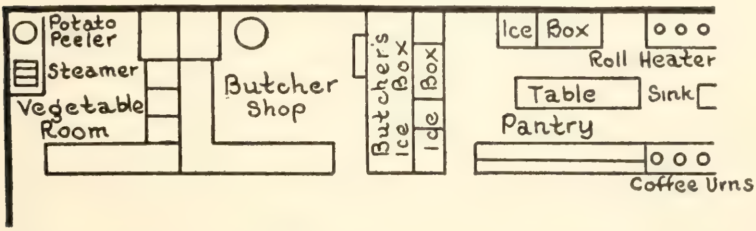


Fig. 8. How the pantry, butcher shop, and vegetable room are laid out. Note the back to back arrangement of ice boxes and coffee urns located so that waiters can serve themselves.

Before doing so it is necessary to decide the functions of the pantry. I have worked in hotels where the pantry woman and an assistant handled all breakfast business. She had a griddle on which she prepared the short orders and hot cakes. During the balance of the day she made all waffles, salads, sandwiches, cold meat, etc. This plan worked out successfully in a 200-room house. Naturally it decreased costs because the main kitchen did not go into service until about 9 A.M., when the work was started for luncheon.

In many large hotels a fountain unit is a part of the pantry—and a very profitable part. There is a big demand for malted milk, mixed drinks such as ginger ale

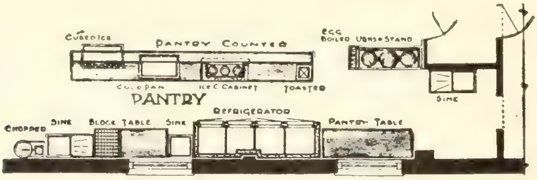


Fig. 9. This pantry takes care of service for a large hotel. The refrigerators are large enough for cold meats, cheese, fruits, vegetables, and other special foods served from the modern pantry. Note especially the table space, sinks, and location next to the kitchen exit to the dining room.

and grape juice, sundaes, orange, lemon, and pineapple drinks. The low price and small space required make a fountain unit well worth while.

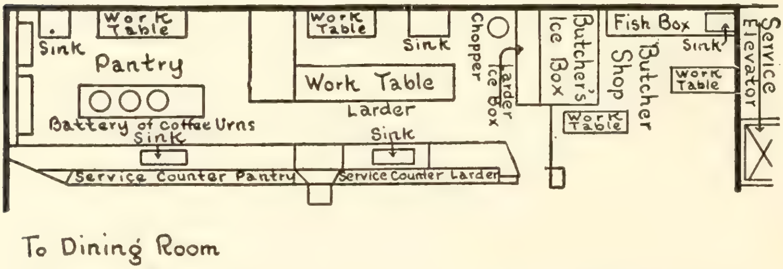


Fig. 10. A very well-planned pantry in a large hotel. Note especially the number of work tables and sinks.

Generally a pantry should be large enough to hold the following equipment:

Automatic toaster
Fruit-juice extractor
Small mixer
Much table space
Grapefruit corer
Stainless steel knives
Spatulas
Large spoons

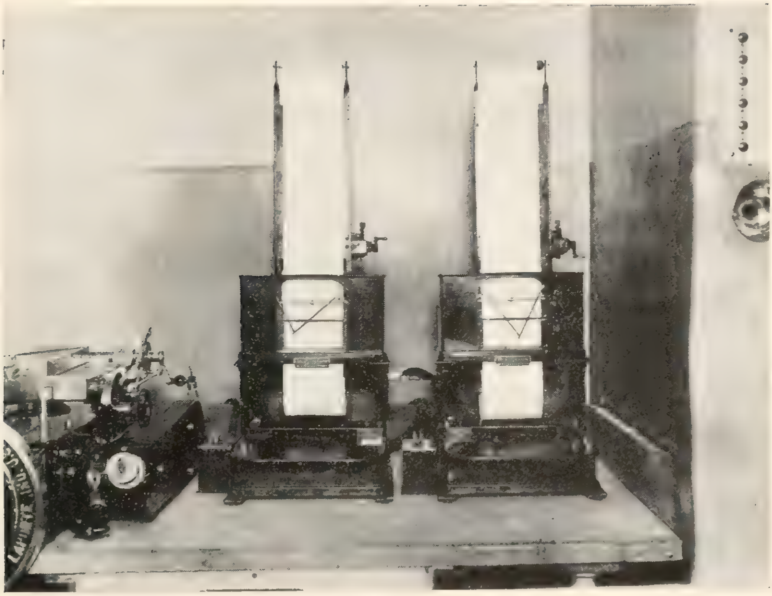


Plate 3. Telautograph service is used in many hotels. Orders written in the dining-room or in the room-service pantries are reproduced in the kitchen.

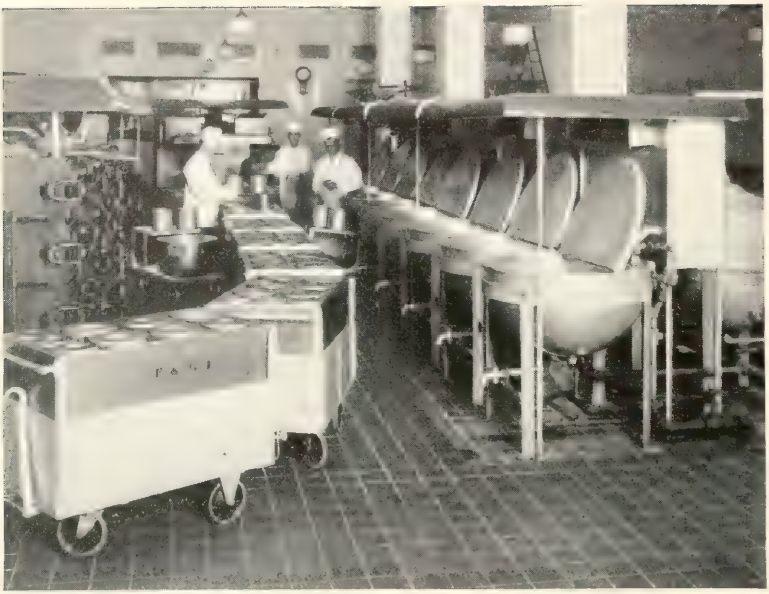


Plate 4. Food carts used for hospitals and institutions.

Shelving for dishes, etc.
Storage space
Garbage can
Bread box
Waffle-baker
Can-opener
Refrigerator
Sinks
Ice-cream container
Scales (for portion sizes)
Urns
Slicer
Butter-cutter
Pie case
Egg-boiler
Sieves
Strainers
Covered crocks
Roll-heater
Cold Bain Marie
Bottle-opener
Pastry bags
Individual butter mold
French knives
Ice-cream scoops
Scissors
Large knives
Stainless pans
Baskets

Some pantries require more equipment and others less. In one hotel (I believe it was in Switzerland) the pantry had a service window leading into the dining room. As all breakfasts were served from the pantry, it is obvious that it insured speedy service.

In the pantry, shelving should be of steel; table tops of marble or stainless metal; floors maple; and walls of tile or other washable surfaces.

The corners should be rounded and all equipment kept off the floor so that there will be no danger of vermin. This is a danger spot for these unwelcome guests.

The work tables and sinks should be the proper height and in the right locations. It is usually advisable to have a sink between two work tables and directly in back of another.

The working space should not be too narrow or too wide. Three feet is wide enough if there is no necessity for crossing paths.

Electrical outlets must be so convenient that long wires are unnecessary.

Plan for the future when all equipment will be electrical.

Drawer space (steel drawers) is usually at a premium in pantries. They are always handy. Much time and labor can be saved if there is place for a small stock of everything needed in a day's work. This, together with a compact, well-planned room, good equipment, and efficient workers, is sure to make the department produce a profit—and very often out of odds and ends that careless or inefficient cooks toss into the garbage can.

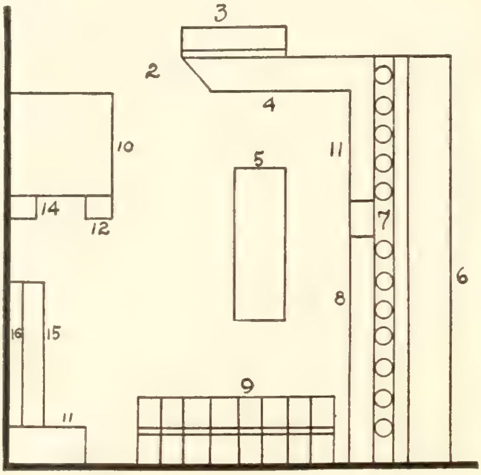


Fig. 11. A pantry designed for quantity preparation. It is located in a successful large hotel.

1 Chef's desk
2 Pantry
3 Egg boiler
4 Work table
5 Work table
6 Ice box of cold plates
7 Installation of jars
8 Work table
9 Ice boxes
10 Ice box
11 Sink
12 Meat grinder
13 Entrance to pantry
14 Bread crumb machine
15 Work table
16 Installation of pans

WHAT OTHERS SAY

"Crocks with covers are very handy in the pantry ice box to use for storing pickles, olives, prepared sandwich meats, etc."

JACK DARRICADE.

"We have a special box for cheese. So much of it is used for salads, sandwiches, with crackers, with cold plates, and with pies, that we make a special effort to keep it in good condition."

JIM JOHNSON.

"By all means build the pantry with drop doors or with heavy mesh screen doors that can be locked during the night. It should not be closed so tightly that there is no ventilation."

MAURICE CURRIE.

"Our pantry woman makes the coffee, but the waitresses serve themselves. The urns are on the outside of the pantry, within a few feet of the door into the dining room. Beneath the urns are the hot dishes for coffee, tea, etc. The waitresses also help themselves to bread and rolls from a bin which has a door from inside and outside of the pantry. Another feature that saves time for the pantry woman is the rack for package cereals, just above the service windows. This makes it possible for the girls to pick up cereal, cream, coffee, and rolls without help from the pantry woman. During the breakfast hour she has an ice pan on the service windows. In this pan she has a few orders of orange juice, grape juice, grapefruit, or any other popular breakfast fruits. At luncheon she does the same with fast-selling desserts and salads. Naturally, service is speeded up."

WALTER SUNDE.

"If you don't want to get swamped when the meal-time rush is on, work ahead of schedule all the time. Try my system:

"The first thing after breakfast, I get my part of the menu and clip it up with two clothes-pins where I can readily see it. Noting what salads and fruits are offered, I go to the storeroom boy and get my complete supply of vegetables, fruits, fish, and cold roast chickens.

"I prepare the celery hearts for orders, keeping the outside stalks for scrap celery to be used in soups, dressing, salads, and so on. The same way with lettuce—the outside leaves of a head are satisfactory as garnish, while the hearts go for orders, with whatever dressing is desired.

"I take the bitter seeds out of mangoes and clip the top and bottom ends so that they are ready for slicing in thin cross-sections at a second's notice.

"If pineapple salad is billed, I get the slices diced into the required size and put the juice aside with other fruit syrups for the chef to use in fruit ices, pudding sauces, and the like. Tokay grapes should be split and seeded, ready for use.

"When the green stuff and fruit are prepared in advance and kept in canvas bags or small crocks in a low ice box, it is possible to assemble half a dozen salad orders in a very short time, and they will have a fresh look and a fresh taste—two highly desirable qualities. When orders come all in a heap, you won't be dipping into pineapple juice or stripping off crushed celery leaves in an attempt to hurry them through on time.

"Just because we hotel employees work with larger quantities than housewives is no reason why we should be extravagant and wasteful. Cut tomatoes into thin, even slices and salvage the ends for cream of tomato soup. The choicest celery leaves, dried and powdered, are far superior to commercial celery salt for making clear consommé savory. The first and last slices of an onion are not shapely, but they may well be salvaged in soups. And ends of lemons, scored to let out the oil, may be dropped into custards, puddings, and even chocolate sauce to lend a distinctly novel and pleasing flavor.

"When you get your fowl from the pantry boy, spread out a clean muslin cloth, and as you slice your meat lay it on the cloth. You can then roll or fold the entire sheet and put it in your cooling box. The meat is then ready for sandwiches and will not dry out as it will if left uncovered to toughen in the air. When you have sliced all the available parts, dice the smaller chunks of meat for salad. Except in very young fowl, the skin should be discarded.

"When a woman can be found who will bring an economical point of view to hotel catering, it will pay many times over to employ her. It should be part of her job to go over the fruits every day and to trim and send to the pantry any orange, for example, with a spot on it, with the suggestion that it be made into salad. She would reduce spoilage in the baskets of peaches and pears by finding the 'nests' before the mold had spread. In this way the loss of fruit from its rotting in the crate would be prevented. She could also suggest to the chef or steward that he list on the menu certain items which would call for the use of foods she could not carry over.

"With the storekeeper watching perishables carefully, and 'pantry' using them economically, waste would be successfully combated in at least two departments of the kitchen."

Nellie Haynes.

CHAPTER III

BAKERY AND BUTCHER SHOP LAYOUT

Sixty-nine per cent of the hotels over 100 rooms in size do all baking in their own bakery. About 40 per cent of the worth-while restaurants, most hospitals, and over 75 per cent of the public institutions do likewise. Therefore, the bakery is an important part of every kitchen.

It should be located close to the pantry and not too far from the storeroom. If it is impossible to have it on the same floor as the kitchen, then by all means have it directly beneath the pantry, so that dumb-waiter service connects these two departments. Such an arrangement will save time and money.

The same principles of construction apply to the bakeshop as to the kitchen. Ventilation, sanitation, and good lighting are equally essential.

Convenience is exceedingly important in the bakery. Equipment must be located so that the fewest possible steps are necessary. Therefore, raw materials must be available when they are needed most. Much table space is essential; landing table must be close to the ovens; mixers should be close to tables; refrigerator should not be close to the ovens, but near work tables. All shelving, cooling racks, cooling tables, and the like, should be so installed that they may be taken down and cleaned regularly. Bakers suggest that flour bins should be on rollers, underneath the work table, so that cleaners can get behind them. There should be ample space for flour trucks, pans, proof cabinets, and sinks. All equipment should be off the floor, as in the kitchen.

Modern Baker. The baker who continues to bake the same products year in and year out has no right to call himself more than an automatic servant. The modern baker is more of an artist than those of old. Today people are not satisfied with white bread and French rolls. They want variety in bread as well as in cake and pastry. There is a decided tendency toward coarser breads, raisin breads, nut breads, and sweet rolls.

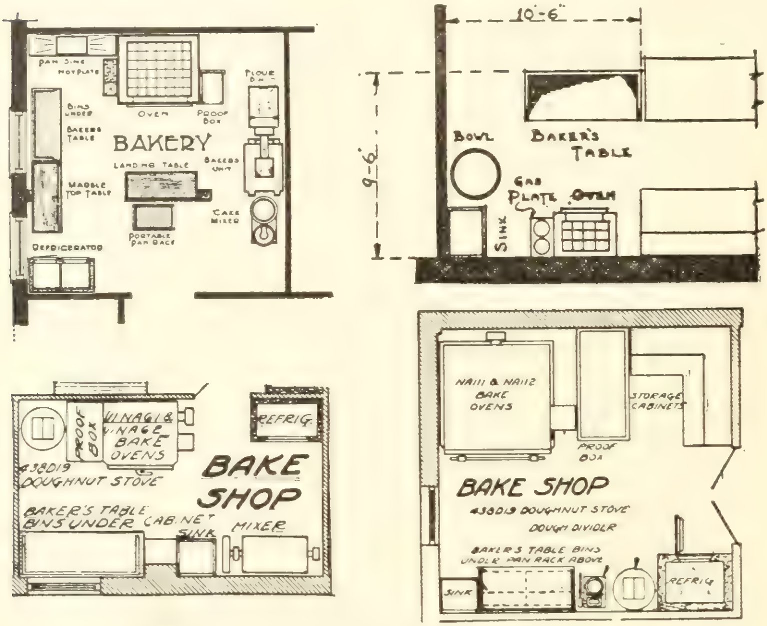


Fig. 12. A study in small bake-shop layout.

People want more fruit pies, and less rich, over-decorated pastry. Fruit and nuts are more popular than ever before, in baking. The executive baker not only gives people what they want, but studies them to find out what they think they want.

The Butcher Shop. The most important point in planning the butcher shop is to allow space enough for refrigerators and tables. If meat is to be bought by the carcass and aged on the premises, much space will be needed in the ice boxes. By having surplus refrigerators, it often pays to buy in advance of immediate requirements.

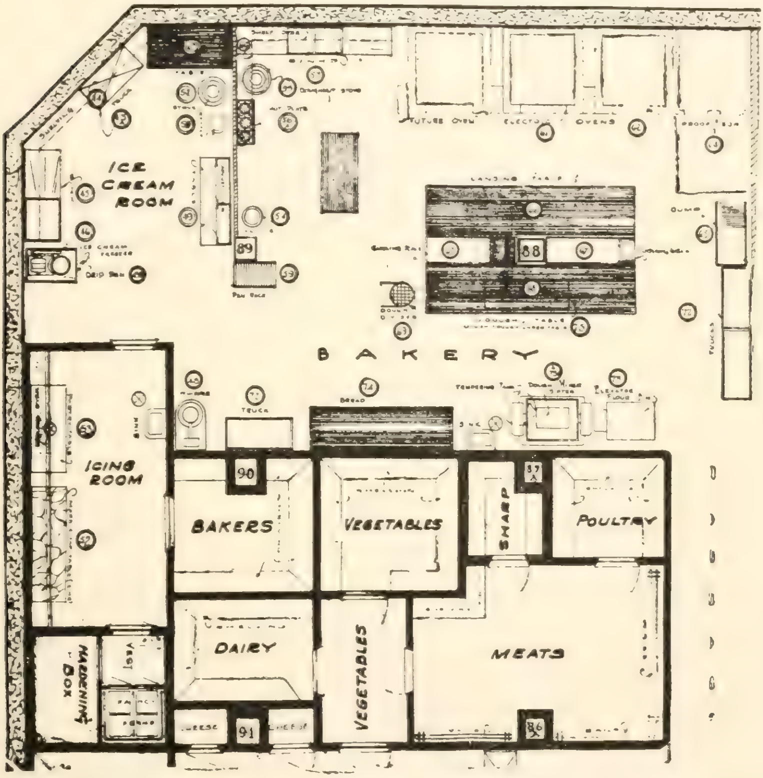


Fig. 13. The bakery and ice-cream room in a large hotel. It is almost always profitable to make the ice-cream served in the house. Many hotels also sell to the public.

The butcher shop should be close to the receiving room, the garde manger, and the main kitchen. It should have all the sanitary construction features found in the kitchen. Like the bakery, it should be built in a separate room with doors wide enough for large trucks.

The bench and meat blocks should be close to the refrigerators. Hanging scales should be at this point, also the sinks, scrap boxes, meat-chopper, slicers, and kettles for meat scraps and bones. There must be space so that trucks can be wheeled around this equipment.

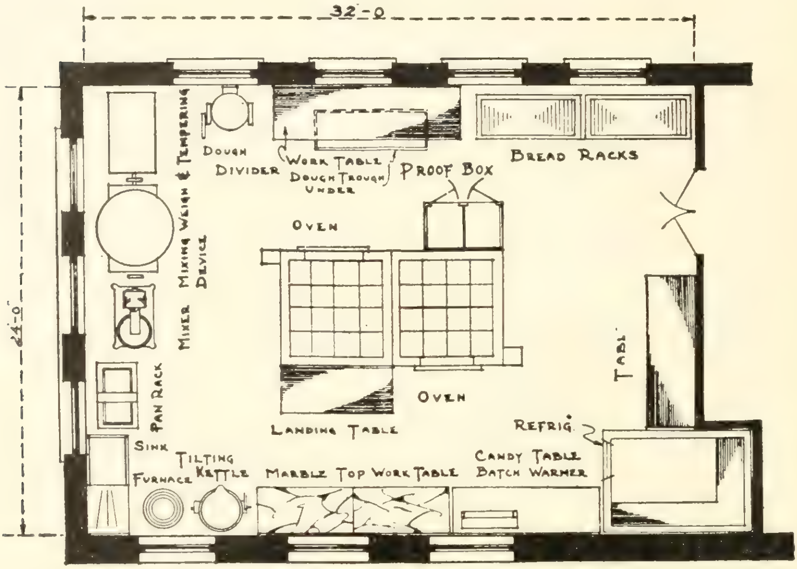


Fig. 14. Bakery layout in a large hotel. They also make much of the candy sold in the house.

The scales at this station are necessary to weigh steaks, chops, and like foods, that are cut for the chefs. In some hotels the waiters ask the butcher for their raw-meat order. A better method is to have a refrigerated wagon in which a supply of ready-cut meats can be kept close to the cooks' station.

The butcher must follow certain standards for meat cuts, and use the trimmings for hash, hamburger, croquettes, soup, etc. Standardized portions in a chain hotel system are as follows:

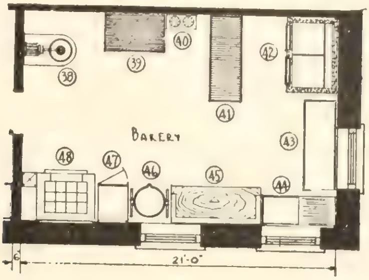


Fig. 15. A compact hospital bakery.

38 Cake Mixer
39 Table
40 Hot Plate
41 Bread Rack
42 Refrigerator
43 Dough Trough
44 Sink
45 Baker's Table
46 Tilting Kettle
47 Proof Box
48 Bake Oven

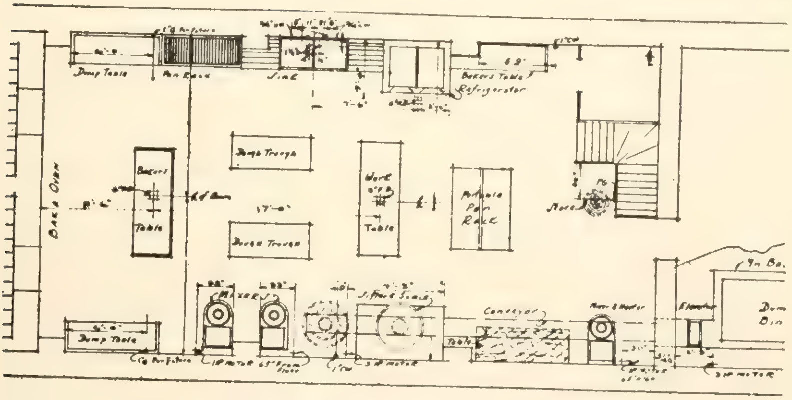


Fig. 16. Bakery in a large institution.

STANDARD PORTIONS FOR BUTCHER

Steak minute, with garniture	7 oz., 1 person	$1.25
Small sirloin steak	8 oz., 1 person	1.50
Sirloin steak	16 oz., 2 persons	3.00
Extra sirloin steak	24 oz., 3 persons	4.50
Porterhouse steak	32 oz., 2 persons	4.00
Small tenderloin steak	8 oz., 1 person	1.50
Double tenderloin steak	16 oz., 2 persons	3.00
Chateaubriand	24 oz., 2 persons	4.50
English mutton chop with kidney	10 oz.	1.10
French mutton chop, one	7 oz.	.75
Pork chops, two	12 oz.	1.00
French lamb chops, two		.90
Veal chop, one	8 oz.	.75
Mixed grill; one chop, half tomato, one mushroom, one sausage, one lamb kidney, one slice bacon, water cress		1.10
Special club steak (7 oz. sauté au plat, half broiled tomato, one large mushroom, two rissolées potatoes)		1.50
(Usual garniture for broiled meats, water cress maître d'hôtel)		
Rack of lamb for two persons, five ribs with vegetables		3.25
Rack of lamb for three persons, seven ribs with vegetables		4.25
Lamb kidney, two pieces broiled with potato		.75
Lamb kidney, three pieces stewed with potato		.90

These are indications of what is being done to eliminate waste, and get accurate food costs by knowing how much to serve. Additional standards may be found in the appendices covering standards.

The efficient butcher gets the greatest possible amount out of each piece of meat. He does this by careful carving, and making use of all left-overs.

Some time ago *The Pacific Coast Chef* held a contest to determine the working materials that could be obtained from one half steer weighing 527½ pounds. The results were as follows:

50½	lbs. bones.	Soup stock, marrow.
108¼	" suet.	Rendering.
56¾	" trimmings.	Consommé, etc.
9¾	" small cuts.	Stews, hamburger, etc.

67	lbs.	large cuts round.	Plain steaks, pot roasts, club steaks, etc.
33	"	rib net.	Roast rib of beef, rib steaks.
15¼	"	sirloin.	Sirloin steaks.
5¾	"	tenderloins.	Tenderloin steaks.
1¾	"	kidney.	Stews, etc.
102	"	inferior cuts.	Corned beef, flank steaks, hamburger, boiling meat, stews, etc.
77½	"	short ribs.	Boiling, baking, etc.

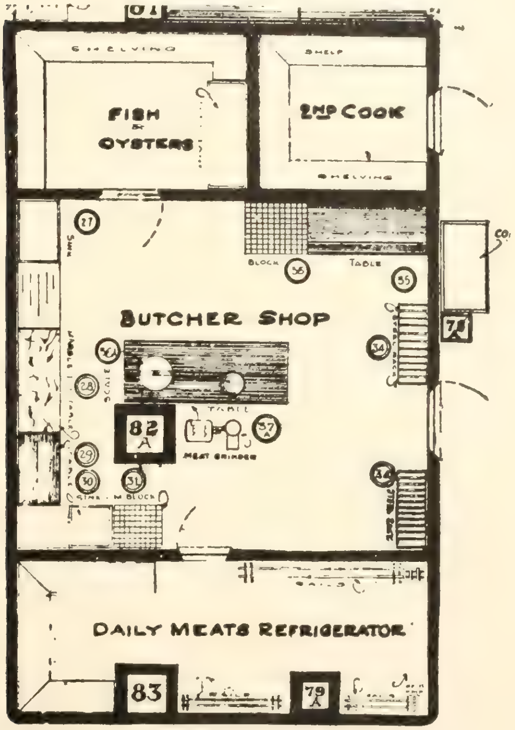


Fig. 17. The butcher shop in a large hotel.

In a recent issue of *The American Restaurant,* J. J. Kaler illustrates what happens when the butcher cuts up a 60 or 65 pound loin:

2 porterhouses	@ 1¼ lbs. ea.	2½ lbs.	@ 24c.	$ .60
6 T bones	@ 1¼ lbs. ea.	7½ lbs.	@ 24c.	1.80
6 sirloins	@ 1 lb. ea.	6 lbs.	@ 24c.	1.44
2 rib steaks	@ 1 lb. ea.	2 lbs.	@ 24c.	.48
6 top sirloins	@ 1¼ lbs. ea.	7½ lbs.	@ 24c.	1.80
6 small steaks	@ ½ lb. ea.	3 lbs.	@ 24c.	.72
3 top tenders	@ 1 lb. ea.	3 lbs.	@ 24c.	.72
Loin butt for pot roast, etc.		25 lbs.	@ 24c.	6.00
Waste and trimmings		5 lbs.	@ 24c.	1.20
		61½ lbs.	@ 24c.	$14.76

NOTE.—These figures are based on prices prevalent when this article was written and may vary on publication.

Transferring these figures to a profit and loss sheet:

2 porterhouses	@ $ .60	served at $1.00 ea.	$ 2.00
6 T bones	@ 1.80	served at 1.00 ea.	6.00
6 sirloins	@ 1.44	served at .90 ea.	5.40
2 rib steaks	@ .48	served at .70 ea.	1.40
6 top sirloins	@ 1.80	served at 1.00 ea.	6.00
6 small steaks	@ .72	served at .50 ea.	3.00
3 tenderloins	@ .72	served at 1.00 ea.	3.00
Loin butt	@ 6.00	30 portions .40 ea.	12.00
Waste	@ 1.20	loss	
	$14.76		$38.80
Plus 30 per cent cost	4.43	cost of food preparation.	
	$19.19		19.19
		Gross profit	$19.61

Mr. Kaler has used the average Western price for beef, and the average served price for first-class Western restaurants. Also, his 30-per-cent cost-of-preparation price will vary greatly according to the cost of items necessary to frying steaks, preparing stews, and the like. But, regardless, it offers an excellent example of the profits that can be made when the butcher is efficient.

In order to make the best use of trimmings, the butcher must have good tools and equipment; a high-grade chopper and slicer are indispensable. In a large shop an electric saw is an economy. The best knives, cleavers, saws, and other tools are cheapest in the long run. Good work cannot be done with cheap tools.

Although statistics show that hotels and restaurants are serving 45 per cent less meat and 26 per cent less pastry than in 1917, there is still a profitable place for the bakery and butcher shop, and a growing demand for butchers and bakers who are economical and progressive executives.

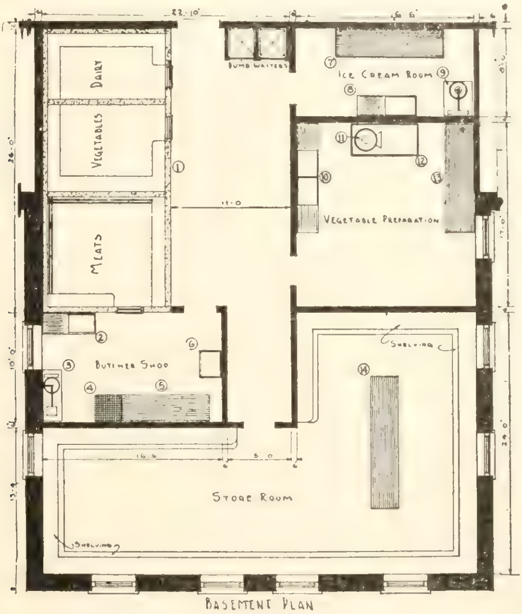


Fig. 18. A plan showing the butcher shop as a part of the storeroom layout.

1 Storage Refrigerator
2 Sink
3 Food Chopper
4 Meat Block
5 Bench
6 Soaking Tank
7 Table
8 Sink
9 Ice Cream Freezer
10 Vegetable Sinks
11 Vegetable Peeler
12 Drip Pan
13 Vegetable Table
14 Table

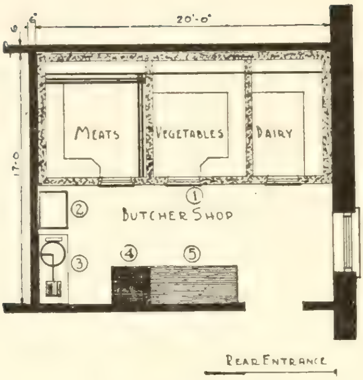


Fig. 19. A compact small butcher shop.

1 Storage Refrigerator
2 Sink
3 Food Chopper
4 Meat Block
5 Bench

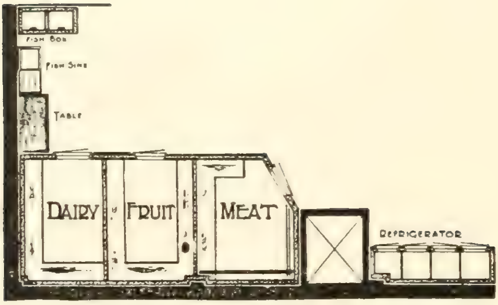


Fig. 20. Corner of a kitchen showing the layout for the butcher shop.

CHAPTER IV

EFFICIENCY IN THE STOREROOM

"THE storeroom should be laid out so efficiently and the merchandise arranged so methodically, that even though the storeroom man were blindfolded, he could still find what he wanted," said E. C. Hayfield, in reply to one of my questions about storeroom management.

He is right. In my talks with successful stewards and storeroom men I always come away with the impression that this department is economically managed only when there is a place for everything and everything is in its place.

The storeroom should be located close to the kitchen—on the same floor, if possible. And it must be close to the receiving door. At least two hotels within a mile of my office employ two men to do nothing but truck merchandise from the receiving room to the storeroom, and then to the distant kitchen. With proper planning, one man could have done the work. An almost identical condition exists in one of the newer large hospitals in Manhattan. These errors in planning cost the management thousands of dollars a year.

Receiving Room. Doors to the receiving room and corridors leading to the storeroom should be wide enough for two trucks to pass. Wherever the goods are to be weighed, there should be room to sort and inspect at leisure. There must be room for large tables, a platform, counter, and hanging scale, and room for trucks to load easily. If the storeroom is on a floor lower than the street, it will be necessary to have large freight ele-

Kind of Meat	Proportion of Bone or Waste in Cut	Proportion of Edible Material in Cut	Assumed Market Price per Pound	Net Price per Pound of Edible Portion
Beef:	*Per cent.*	*Per cent.*	*Cents.*	*Cents.*
Brisket	23.3	76.7	7.0	9.0
Rump	19.0	81.0	10.0	12.5
Flank	5.5	94.5	7.0	7.5
Chuck rib	19.1	80.9	10.0	12.4
Porterhouse	12.7	87.3	20.0	23.0
Neck	31.2	68.8	7.0	10.0
Ribs	20.1	79.9	15.0	19.0
Round	8.5	91.5	15.0	16.5
Shin	38.3	61.7	3.0	5.0
Heart	5.9	94.1	5.0	5.5
Tongue	26.5	73.5	22.0	30.0
Veal:				
Cutlets	3.4	96.6	20.0	21.0
Breast	24.5	75.5	12.5	17.0
Mutton:				
Leg	17.7	82.3	15.0	18.0
Chops	14.8	85.2	15.0	17.5
Forequarter cut for stewing	21.2	78.8	12.5	15.9
Pork:				
Loin	19.3	80.7	15.0	19.0
Salt pork	8.1	91.9	12.5	13.5
Bacon	8.7	91.3	20.0	22.0
Ham	12.2	87.8	20.0	23.0

Fig. 21. The steward and butcher must know the net price of the edible part of foods because that is all they can sell on the table. This chart illustrates the value of different cuts as compared with an assumed market price per pound. Naturally this price varies and is therefore used only to illustrate the comparative value of different cuts.

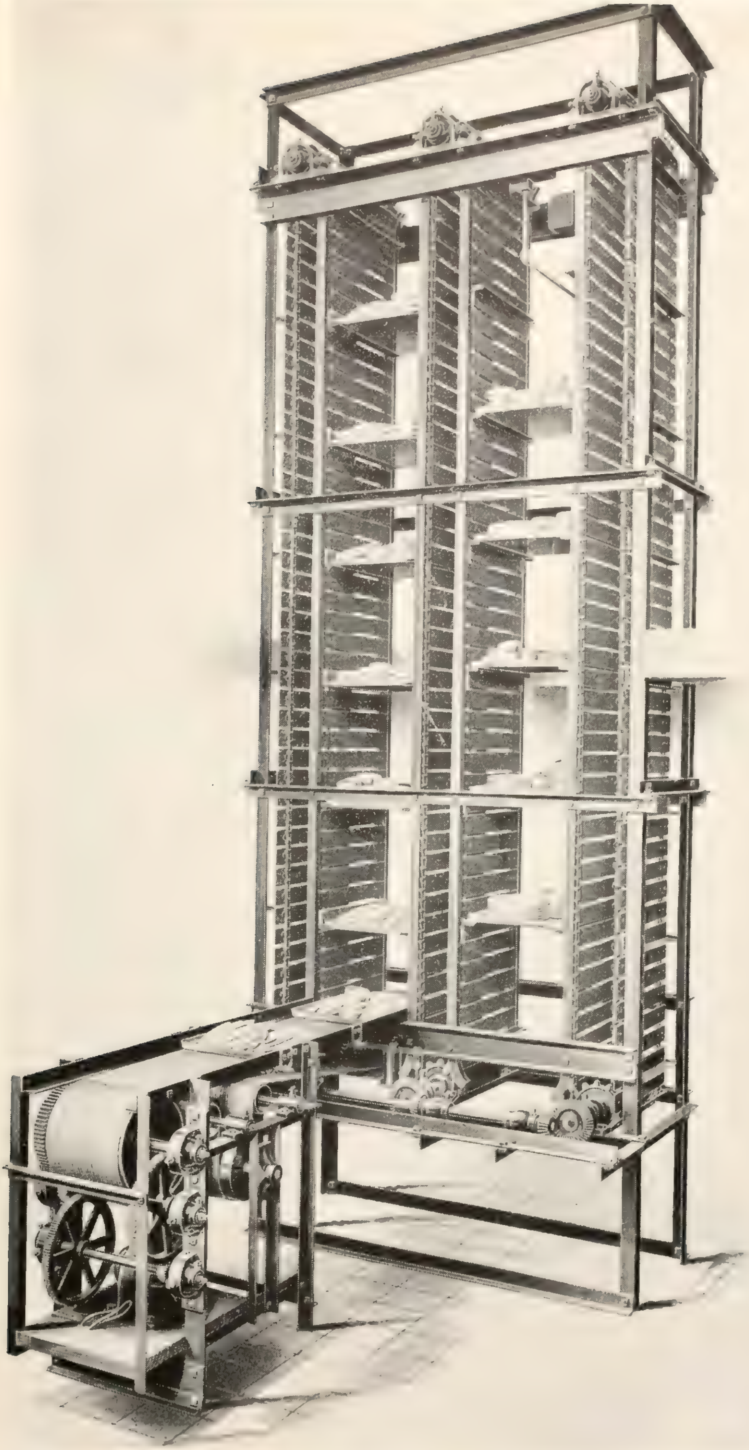
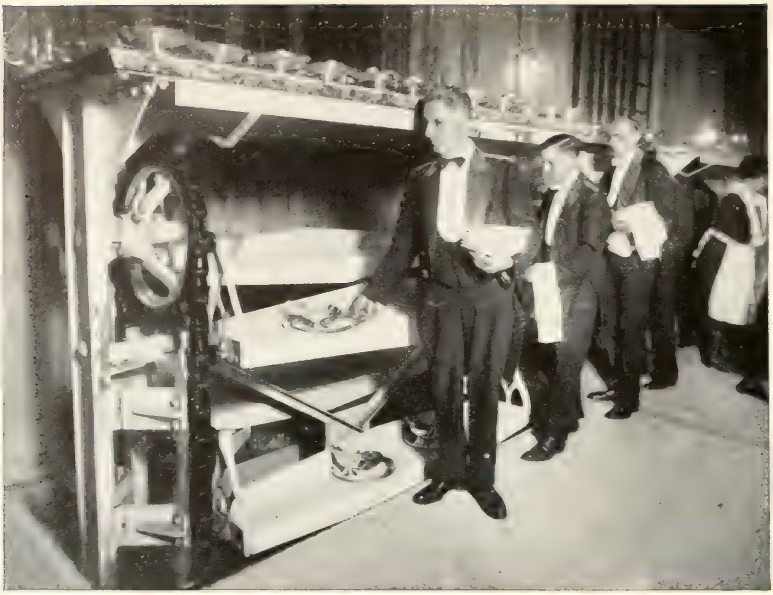


Plate 5. Skeleton view of a subveyor to carry soiled dishes to the dishwashing department and convey clean dishes to the department where they are needed. There is practically no limit to what can be done in transporting dishes to out-of-the-way corners.



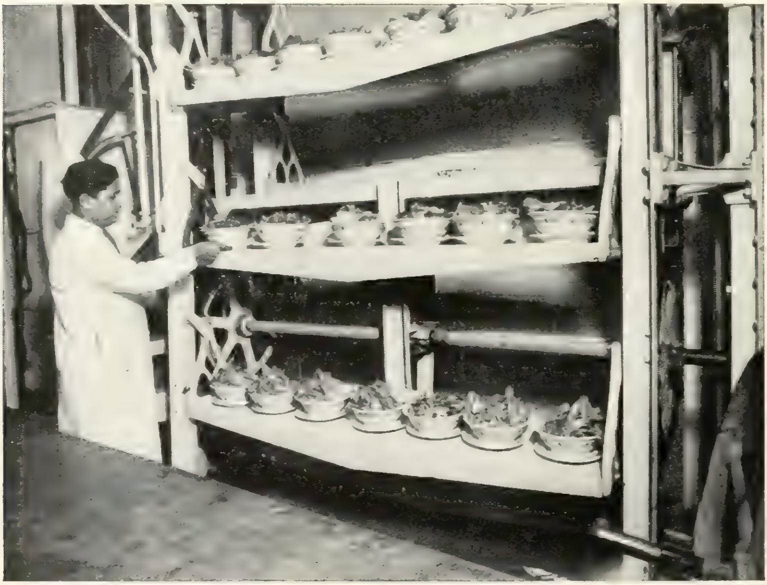


Plate 6. Two views of one of a battery of five food conveyors used at the Astor hotel in New York. In the lower photograph the pantry man is shown loading the salads for service on the ballroom floor. The top photograph shows waiters taking food from another conveyor. Soiled dishes are returned to the kitchen on the other side of the conveyor. When not in service, the conveyors are lowered into the floor so that no machinery is to be seen.

vators, chutes, or a conveyor. These must bring the merchandise into the most convenient part of the receiving room. If a conveyor system is used, the goods can be brought directly into the storeroom, regardless of whether or not the storeroom is on the same floor.

The receiving clerk in a large Swiss hotel also acts as watchman to guard against employees carrying out house property. His office commands a view of the entrance. Another feature in this house is that the controller's office is next to that of the receiving clerk, with the result that records of all incoming shipments are sent on to him at once. In the controller's office are found perpetual inventories of all goods received in the house, with the exception of linens, which go direct to the housekeeping department.

The storeroom proper should be large enough to hold the most economical amount of merchandise. What this should be is a point to be settled before the storeroom is planned. Institutions located at the source of supplies do not need a storeroom as large as those in out-of-the-way places where transportation is unreliable. Generally, it does not pay to carry large stocks of merchandise. The best stewards keep investments down to a minimum. High turn-over is a badge of honor in the steward's department.

The room should have a ceiling of at least twelve feet, be well ventilated and properly lighted. Enameled walls and ceilings and concrete or heavy tile floors are advisable. The flooring must stand up under heavy trucking. If concrete is used, it should be painted with materials that prevent crumbling and dusting.

All corners should be rounded, as in the kitchen, and a large drain in the center of the room, away from all shelving, is essential. The storeroom must be kept free from all odors, vermin, or rodents. Frequent flushing makes this possible. A good system of ventilation keeps the room fresh, dry, and free from odors.

Model Storeroom. The ideal storeroom for large institutions has departments for china, silver, cleaning supplies and paper goods, beverages, meats, perishables, and canned goods.

Fresh meats, fish, vegetables, fruits, berries, and dairy products must be stored in refrigerators of varying temperatures. Cleaning supplies can be kept in any dry part of the storeroom. Canned goods should not be kept in refrigerators because there is a danger of rust, Canned berries that are acidulous and such canned products as olives and pickles should be stored in a temperature of about 38 degrees, otherwise they are apt to ferment and burst their containers. All this influences the layout of the storeroom. Each department must be made to fit into the perfect plan. Other points to be considered in making a perfect plan are:

Foods bought and issued most frequently should be stored in a department of the storeroom that is closest to the kitchen and receiving room. Not long ago I visited a storeroom in which the fresh-meat room was at the greatest distance from the point of receipt and preparation. The china and silver department was within a few feet of the steward's office. If the refrigerators had been built where the china and silver room was located, there would be a saving of sixty feet of trucking or walking every time the refrigerators are used. The steward estimated that their loss amounts each year to the time it takes a man to walk 250 miles. This is an indication of how a little mistake takes a big annual toll in operating costs.

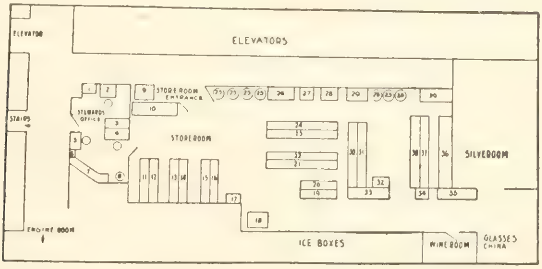


Fig. 22. Hotel Storeroom Floor Plan.

1 Files
2 Desk
3 Table
4 Steward's Desk
5 Table for magazines
6 Wash stand
7 Sample case
8 Clothes rack
9 Scale
10 Table
11 Steel shelves for liquors and fancy fruit packs
12 Steel shelves for jams, jellies and preserves
13 Steel shelves for jams, jellies, cherries, raspberries, etc.
14 Steel shelves for fancy small peas, carrots, brussels sprouts, etc.
15 Steel shelves for mushrooms, pimentos, cauliflower, etc.
16 Steel shelves for cereals in individual packages
17 Steel shelves for mustard, catsup, sauces, oils, olives, pickles
18 Scale
19 Steel shelves for crackers, cookies and biscuits
20 Steel shelves for tea, etc.
21 Steel shelves for No. 10 cans of apples, cherries, figs, apricots, strawberries, etc.
22 Steel shelves for No.10 cans spinach, artichokes, peas, beans, etc.
23 Steel shelves for canned asparagus, carrots, beets, pumpkin, lima beans, corn, etc.
24 Steel shelves for spaghetti, raisins, prunes, corn starch, sugar, etc.
25 Galvanized iron cans, and wooden barrels for vinegar, syrup, molasses, oil, cereals, etc.
26 Table in front of window from which goods are issued
27 Sink
28 Table
29 Brooms, etc.
30 Steel shelves for chocolate, spices, etc.
31 Cleaning compounds, tooth picks, candles, borax, etc.
32 Table
33 General storage
34 Paper bags, etc.
35 Paper products such as doilies, souffle cups
36 Paper goods
37 Paper goods
38 Brushes, soap, toilet paper, cord, mops, etc.
39 General storage

Shelving. The modern storeroom should have steel shelving, steel tables, steel bins, and steel doors. The shelving should be adjustable, and of heavy-gauge material for sections in which heavy goods are stored. Such articles include china, silver, soap, chocolate, canned goods, large bottled goods, salt, etc. Money can be saved by ordering a specific gauge for each section.

The shelves should be adjusted to store a specific amount or number of each article in a section. As an example, each dry breakfast-cereal section in a Chicago hotel holds forty-eight packages—six rows of eight packages each. A glance at the shelf shows the number on hand.

All shelves and bins should be off the floor, high enough for quick cleaning. The heaviest products, such as barrels (and these should have faucets), bins, etc., should be on the lower shelves. But be sure to have barrels high enough so that containers can be put under the faucet. The lighter and less frequently issued goods can be kept near the top. Each shelf, bin, barrel, and refrigerator should be labeled so that new employees lose no time in finding goods. A heavy sliding ladder should be a part of the equipment between each row of shelves. The one ladder should serve both sides. For this reason, and also that of loss in placing goods on shelves, the distance between them must not be too great.

The section for sugar, coffee, spices, flour, and other products which are weighed out into smaller packages before they are issued should be close to a table, scale, and issue window. Both hanging and counter scales are used at this point. The most capable stewards buy bulk goods at every opportunity, and let the storeroom man weigh them out for issue.

In addition to this equipment the average storeroom needs several trucks; a coffee mill; a spice mill; an egg-tester; a cream-tester; a wrapping table with paper rolls,

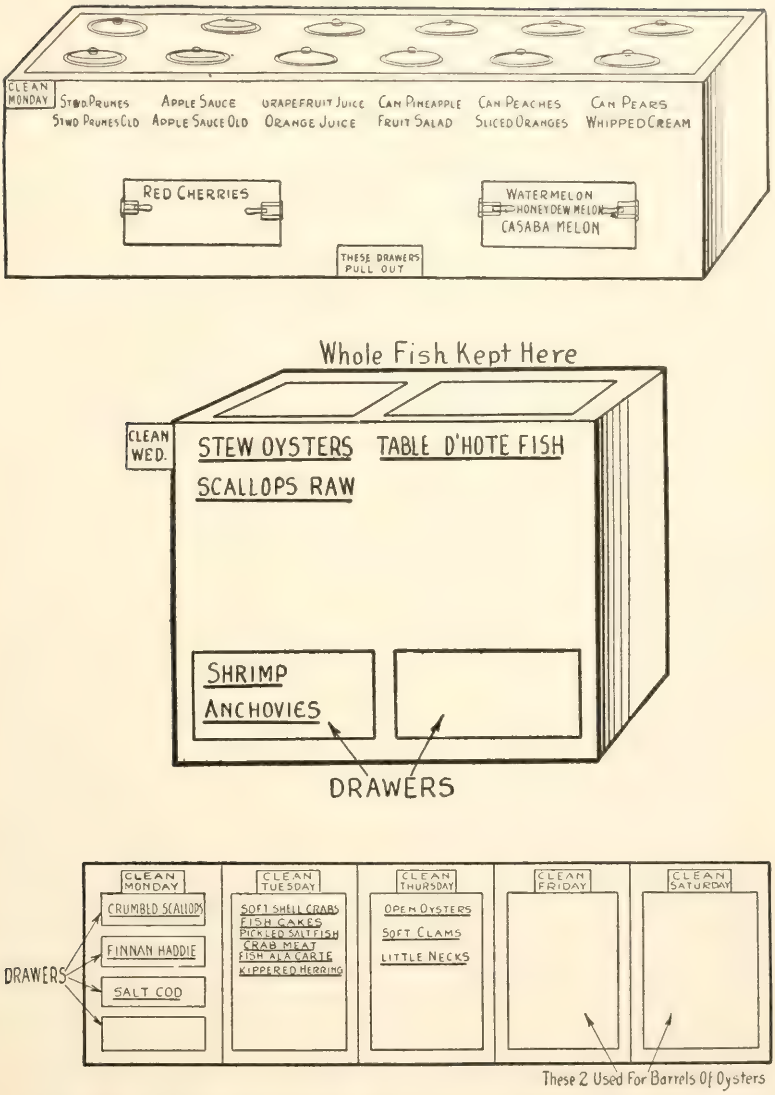


Fig. 23. Time, confusion, waste and spoilage are greatly reduced when the refrigerators are clearly labeled. The three sketches show how it should be done.

string, and cord; a roll of gummed tape; rustless scoops for sugar, cereals, etc.; a few sturdy chairs; a folding ladder; fire-extinguishers; first-aid kit; steel files; a typewriter; a desk; an adding-machine; a bookcase; clothes hangers; washbowl with mirror; powdered soap dispenser and a towel rack.

Cold Storage. The cold-storage units should be away from all steam pipes. The door to each one should have a pneumatic closer and a signal light which shows when the inside lights have been left on. In large houses there are separate ice boxes for cheese, milk, cream, eggs, butter, fresh fruit, vegetables, meats, poultry, delicatessen products, beverages, and cigars. Nuts, candies, etc., are often kept in the delicatessen box.

The ideal method of storage is by products, with special shelves for each, about as follows: breakfast cereals, spices, sauces, canned soups, canned fruits, canned fish, canned vegetables, etc. This is the system Mr. Hayfield had in mind when he made the statement at the beginning of this chapter.

This method of storage, with a specific number of units to a shelf, saves time on inventories. These are taken once a month in the food department and quarterly in the china, glass, and silver sections. In these sections, and for expensive products such as poultry, a perpetual inventory is often kept. Usually this system is too detailed for small, inexpensive products.

In the modern storeroom merchandise takes the following circuit:

1. The steward or manager makes out a purchase order, buys.

2. The goods are received, weighed, counted, and checked against purchase order or invoice and driver's receipt.
3. Goods are transported to proper department—perishables to be used at once to the kitchen, and all other merchandise to the storerooms.
4. Goods are placed on shelves or in ice boxes.
5. Goods are issued on orders from chef or other department heads.

Issues from Storeroom. There is no standard system for making issues from the storeroom. Although written requisitions are used in all modern institutions, J. G. Riesener, in *The Alarm Clock,* wrote the following on the subject:

"When the various departments order supplies, properly filled out requisitions should be presented, showing quantity and item desired. If requisitions call for items not on hand, no changes on the original requisition should be allowed, but a credit memorandum made out in duplicate, which will be returned to the head of department making the requisition, thus bringing the non-delivery to his attention. When the desired article is received in the storeroom later, the particular head of the department is to be notified, and then upon presentation of the credit memorandum he will receive the requested merchandise. The returned credit memorandum should then be filed with the original, which was kept by the storekeeper. A periodical perusal of this file will also reveal to the manager or steward whether or not his storekeeper is keeping his stock up to the standard supply. The issuing of items, such as brooms, pails, mops, etc., should be done only upon return of the used article.

When all issued are covered by requisitions and these are accurately priced, there should, theoretically speaking, be no storeroom shortage at the end of the month. However, too often large discrepancies are recorded from time to time, which may generally be attributed to one or more of the following reasons:

1. Allowing employees other than the storekeeper to enter the storeroom and fill orders, or delivering goods by the storekeeper on oral orders with promises of proper requisitions later.
2. Filling requisitions by guess instead of actual count, measure, or weight.
3. Partly filling orders on requisitions and not recording exact amount delivered or making credit memorandum for any missing articles.
4. Keeping no record of goods returned for credit, swells, leaks, breakage, or spoilage, caused by over-purchasing, etc.
5. Making no correction in the changes in prices of articles purchased.

The following method is used to ascertain whether or not a storeroom shortage occurred.

Debits:

Opening inventory at beginning of month. $...........
Add: Purchases or deliveries to storeroom ....

Total debits........................ $........... (A)

Credits:

Closing inventory at end of month....... $...........
Add: Issues as shown by requisitions..... ....

Total credits........................ $........... (B)

Total debits........................ $........... (A)
Total credits........................ $........... (B)

Difference........................ $...........

Schedules. The steward and storeroom man must arrange their work to meet the demands of the departments that use the products kept in the storeroom. In a large New York hotel foods are issued from 6 A.M. to 2:30 P.M. and from 4:30 P.M. to 9 P.M. Crockery, glass and silver is issued from 9 A.M. to 12 noon, and from 2 to 6 P.M. The steward sees city salesmen from 9 to 11 A.M. and in the case of out-of-town salesmen he tries to see them when they call. He tries to have all orders for the next day in the hands of dealers before 3 P.M. He demands that all deliveries be made before 11 A.M.

This steward personally inspects and sorts all melons—some for immediate service, and others for future. He has trained his staff to go over tomatoes, peaches, berries, and other highly perishable fruits and vegetables, to pick out those that must be used immediately, those that are best for table service, and the kind that are satisfactory to the pastry department. He also makes his own cream tests.

In order to carry on this work in a business-like manner, the steward and storeroom man must have a respectable office. It should have glass partitions so that the steward can see all parts of the storeroom and the scales.

The office should be equipped with large desks, filing cabinets, tables, bookcases, comfortable chairs, food charts, etc. It must be well ventilated and have good lighting. These are essential because most headquarters for stewards are inside rooms.

One thing is certain—there will be little efficiency in the storeroom if working conditions do not promote good health.

CHAPTER V

DISH AND SILVER CLEANING DEPARTMENTS

Authorities may not agree about the best location for the dish-washing department, the method of handling dishes, or the kind of washer to be used. But all agree that the department merits much more consideration than it receives from architects, builders, and even managers.

It is not difficult to buy efficient and economical washers. There are at least six that do a good job at a fair price—when they are selected for specific dish-washing problems that are peculiar to the institution in question.

Shall the dish-washing department be on the same floor level as the dining room? Many say that it should. I do not believe that it is necessary. Factories with a similar problem use modern methods of transportation, which in this case means the use of conveying machines. But regardless of whether dishes are carried by hand or machine, the department must be laid out for the greatest speed and efficiency at the lowest possible cost of operation.

I agree with those who think that the dish- and silver-washing departments should be housed in a room separated from all others; that this room should be well ventilated, perfectly lighted, and constructed of noise-deadening materials. The floors should be tile or cement, protected with a finish that prevents absorption. Walls should be enameled, corners should be rounded, and the floor equipped with a large drain. This room must be flushed with hot water and cleaning solutions every night. In some cases disinfectants are necessary. Therefore a slight decline toward the drain is advisable.

Two Units. If a double-unit system is to be used, care must be taken that both machines can be operated as efficiently as one. It must be possible to deposit and sort dishes with the least amount of waste motion.

The silver- and glass-cleaning departments should be a part of the dish-washing departments. Silver service is growing in popularity because it is economical and because those who eat in public places are accustomed to a silver service in their own homes.

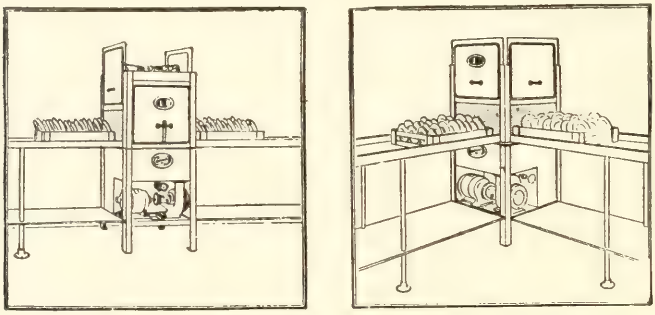


Fig. 24. Washing machines can be purchased to fit walls or corners. In order to buy efficiently the purchaser must know the conditions under which the machine must operate.

Silver should not be brought to the sorting table with china and glasses. This causes a great deal of breakage and doubles the work for employees in the dish-washing department. Silver that is not to be put through the dish-washing machine can be given at once to the silver-cleaners. If these departments are together there is no waste motion. The silver-repair department, the functions of which are covered in another chapter, may be a part of this general department or separated from it. They should be close together in order to save time and labor in transportation. It also lessens the danger of theft and loss. In some kitchens the silver-repair room is a part of the room in which, infrequently, used silver is stored.

The silver-cleaning department must be equipped with a great deal of shelf and table space. And these must be sturdy because it does not take much silver to make a heavy load. The shelves must be graduated in size and width, so that there is no waste of space, yet room enough for the largest pieces. Wide shelves are needed for trays, high ones for punch bowls and candelabras, low ones for platters, and medium-sized ones for coffee pots, sugar, and creamers, etc.

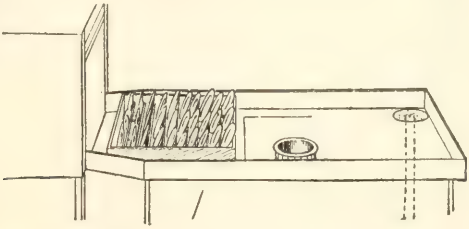


Fig. 25. The pitch of the soiled dish table should be away from the machine toward a drain at the end of the table. The clean dish table should drain into the machine.

If the dish-washing department is located for the convenience of hand delivery, it should be close as possible to the dining room. If the room is well constructed, ventilated, and sound-proofed, it can be placed next to the door from the dining room to the kitchen. Otherwise it must be removed far enough to keep noise from the dining rooms.

If a conveyor or dumb waiter is used, the department must be planned so that the dishes can be put on the soiled-dish table without additional carriage. Also, clean dishes should be put on the dumb waiter without lost motion. I have seen kitchens so badly planned that two extra employees were needed to transport dishes to and from the dumb waiter. The well-designed conveyor should carry dishes directly to and from the washer.

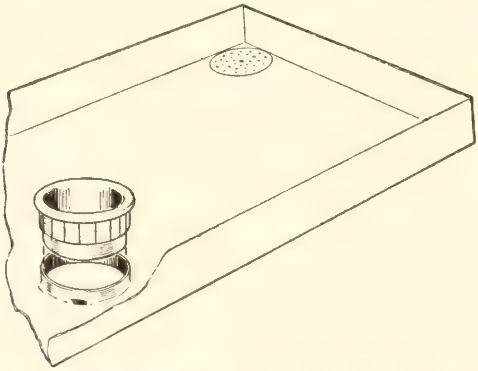


Fig. 26. A flanged collar on the soiled dish table accommodates the scraping block and prevents flow of liquid into the scrap barrel, also the loss of silver and small dishes.

Soiled-dish Table. The table for soiled dishes must be large enough to prevent a jam, but small enough so that the operators do not waste effort. The efficient manager should be able to estimate the capacity of his dining rooms and the average number of dishes used per person. It is on this basis that he must purchase a dish-washing machine. In each case he should allow a margin of 25 per cent more capacity than necessary.

Ample space must be allowed for stacking clean dishes and for the dish-storage trucks. In many kitchens dish warmers and containers are on trucks so that they can be moved from the dish-washing department to the section of the kitchen where they are used. If this is to be done, space must be provided for loading.

Special shelves should be used for dishes stored in the department. These should be made to hold only one size and type of china so that there will be no breakage due to careless stacking. Wood rather than steel shelves should be used.

Good lighting is important. Without it dish-washers have no way of knowing whether or not the work is being done properly. Globes must be cleaned frequently because they become covered with grease and steam.

The general manager of a chain hotel system demands that the dish-washing engineer be called in while the kitchen plans are still on paper. As a result, the department is laid out more efficiently than otherwise. In most cases, dish-washing engineers employed by manufacturers are more efficient at this particular job than the supply-house engineer. They can give valuable advice about planning the dish-washing department so that it will function as a smooth running part of the kitchen.

CHAPTER VI

DIET AND SERVICE KITCHENS

Twenty years ago the diet kitchen was considered a necessary evil. Few doctors were willing to admit that food played an important part in preventing and curing diseases.

Today the modern hospital is planned and equipped to serve food that will hasten the cure, and even educate the patient how to cook and what foods to eat for greater health. As a result the diet kitchen is an important part of hospital food service. But little thought has been given to the practical part of preparing and serving the food at the lowest possible cost. Dietitians and doctors are too engrossed in their profession to give this much thought. It is only the new age of business management in the hospital that is demanding an accounting.

Modern Transportation. With modern methods of transportation, it is possible to prepare food at a distant point and deliver it hot and in good condition to the patient. There is no reason why food service departments should not be grouped much closer than they are at present. The so-called Bacon plan, conceived by Asa Bacon, is rapidly taking the place of other methods of serving food.

Bacon Plan. An article by Matthew O. Foley, editor of *Hospital Management* magazine, describes the plan:

> The Bacon plan calls for the elimination from the floor of all space for floor kitchens, utility rooms, and similar rooms. Central food and linen service obviate the necessity of space on the floors for kitchen and linen closets, and the individual utility rooms in the patients' rooms reduce

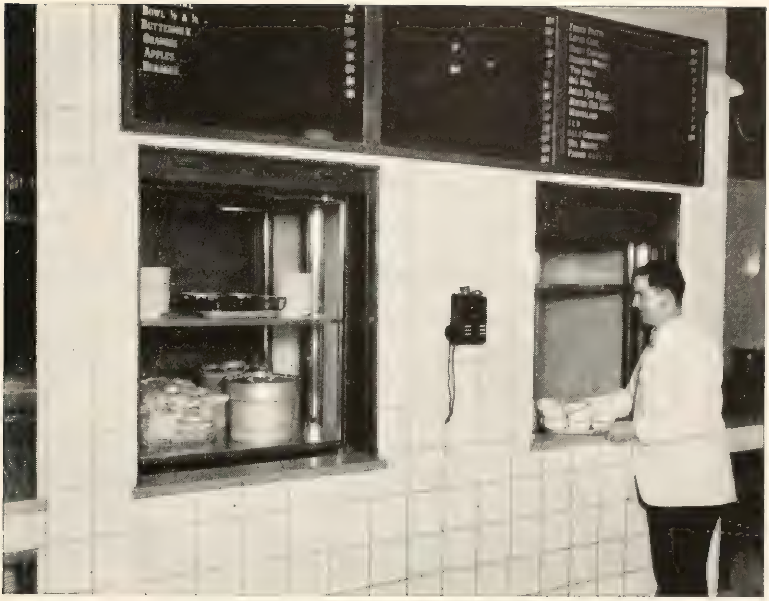


Plate 7. Brass tube dumb waiters in an up-to-date cafeteria. The outfit shown is designed for light, rapid service. Such dumb waiters are popular where the outfit is not enclosed and where an attractive appearance is desired.

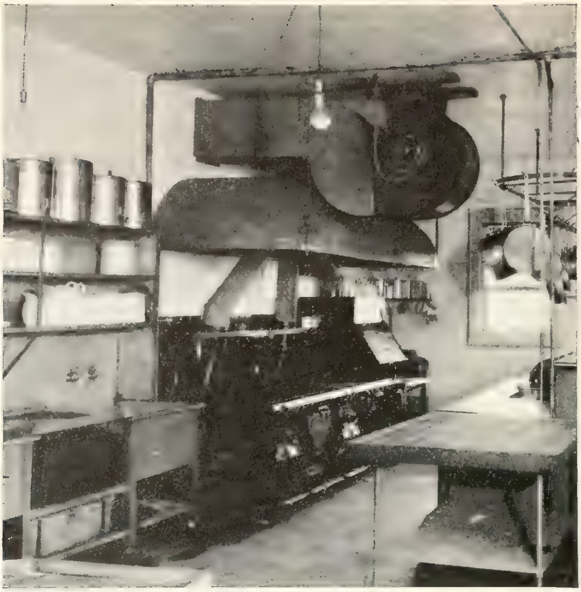


Plate 8. This illustrates a blower system suspended from the ceiling. It discharges foul air on to the roof.

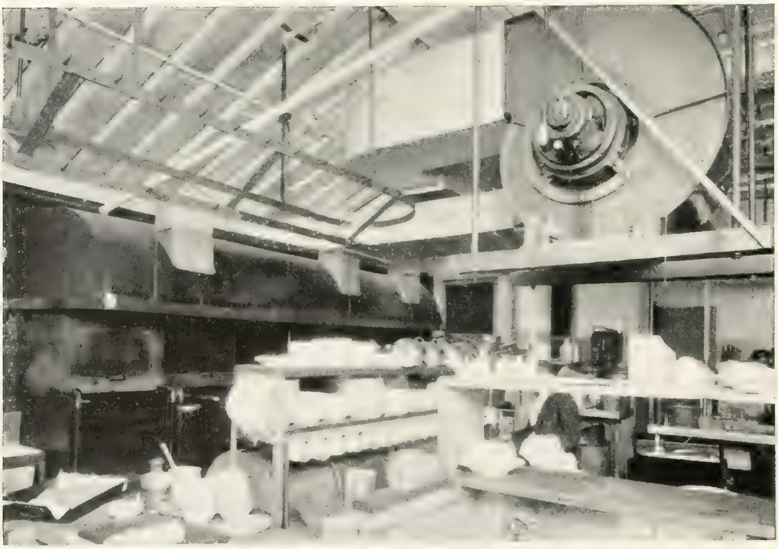


Plate 9. This illustrates a blower system suspended on a platform. It takes care of the ranges and dishwashing department in a large institution.

the number of general utility rooms. So the unit of thirty-eight private rooms in the Presbyterian Hospital in Chicago, built and equipped on the "Bacon plan," is served by central tray service from the kitchen.

The "Bacon plan" idea is built around the kitchen and central linen room, but neither of these departments was touched in building programs of Presbyterian Hospital until about two years ago, and it was not until then, therefore, that the board of trustees had an opportunity to put to a test its faith in the ideas of its superintendent. The "Bacon plan" unit and the central food service have been in use only about eighteen months, but in that time they have been subjected to a great variety of tests, since in such a large hospital as Presbyterian there are always a number of people of different opinions, and opponents of the "Bacon plan" and of central food service certainly would not have let any opportunity for an "I told you so" pass. As a matter of fact, in order to give the staff every chance to return to the old style of floor kitchen food service, Mr. Bacon left the floor kitchens as they were in portions of the older buildings given over to central food service, so that, if the doctors desired, the former methods could be resumed. But, according to Mr. Bacon, nobody wants to go back to the old method.

The hospital for more than a year and a half has been serving its private pavilion, which averages about 140 patients daily, by central tray service. Of principal interest to hospital administrators in connection with the experience of Presbyterian Hospital is the fact that this service as it has been carried on has been effected in an old-style type of building—that is, in a building in which the original method of food service was by means of floor serving kitchens. The ward sections of the building still are served in the old way, thus affording unusual opportunities for detailed comparison of the advantages and disadvantages of the two types of food service. About 275 patients are served under the old plan, the food being transported to the floor kitchen in which the trays are set up.

The average amount of food waste under the central service is seven ounces per patient per day, while under the old system in the ward sections, the figure is 8.11.

Bacon Plan Advantage. Other advantages of the central tray service include:

No space is required on the floors for floor kitchens, and the rooms formerly used for this purpose on five floors may at any time be used as private rooms with an approximate revenue of $50 a day.

Breakage has been cut down to a remarkable extent, some estimating this at as high as 30 per cent.

There is no garbage on the floor, no noise of dish washing, and no food odors.

The loss of silver is almost negligible.

The principal advantage, of course, is in the better and faster service to patients.

The installation of central tray service in the Presbyterian Hospital, as far as patients' floors were concerned, necessitated only the installation of dumb-waiters and the recessed tray racks near by. The latter are for use in an emergency which may arise between the time the tray was sent up and the time the maid reaches the patient's door. In such an instance, the tray is placed in the recessed rack. The rack also may be used when all the maids are serving trays, and several have been sent to the floor. In this instance the maid on the floor at the dumb-waiter merely places the trays in the rack, pending the arrival of the other maids to serve them.

A very small fraction of time elapses between appearances of the maids at the dumb-waiter station and tray rack, because repeated tests have shown that less than sixty seconds elapse between the time the maid receives a tray and carries it to the farthest patient on a given floor. On one occasion, when a visitor was present unexpectedly, a check revealed that 100 trays had been set and served in thirty-five minutes. These figures will indicate the brief interval elapsing in which a tray may be placed in the rack. Usually the trays are served in groups of four, and there are four maids on the floor that is being served, thus obviating the use of the recessed rack at any time except in an emergency, or the return of trays from the patients' rooms.

Special Switchboard. A special switchboard connecting the central kitchen to each floor with the floor phone located near the dumb-waiter has proved invaluable in advising the kitchen of emergencies that may prevent the serving of a tray, thus obviating the necessity of setting up a tray and of sending it to a floor before the patient was ready. This phone service also can take care of last-minute changes in the selection of foods by a patient, also all special orders.

The dumb-waiter, which is one of the most important cogs in the Presbyterian system of central food service has received considerable study from Mr. Bacon in the years that he has been perfecting this system. It represents an improvement over dumb-waiters in other "Bacon plan" hospitals. One improvement is that the mere closing of the dumb-waiter door on the floor starts it back to the kitchen, and the doors close by door checks as soon as released. The doors of the dumb-waiter also are of the casement type, instead of those that slide up and down. The dumb-waiter shafts are set back about a foot from the corridor wall, thus giving the maids an opportunity to receive trays with the doors open without interfering with traffic along the corridors in any way. The dumb-waiters travel from the kitchen to the fifth floor in fifteen seconds.

Indicative of the care to detail given by Mr. Bacon in the perfection of food service, one might mention the reduction in the weight of the average tray, set from sixteen and a half pounds to fourteen pounds. Small-size sugar and cream containers have been obtained in order to conserve space on the tray and to reduce waste through unused portions. Extra-heavy tea and coffee pots and soup tureens are used to maintain the temperature of beverages and soups.

Selected Menu. Presbyterian Hospital uses the selective menu plan and dietitians consult with patients to learn their choices. The dietitians usually visit patients between 9:30 and 11:30 A.M. to learn of food selections for the following day. This places the patient in direct contact with the dietitian.

Satisfactory central tray service depends on a good organization, adequate equipment, placed where it can be used with a minimum of time and effort on the part of those setting the trays. The equipment occupies a comparatively small amount of space, and yet there is no crowding, inconvenience, or disorder. In fact, during the serving of 100 trays referred to previously, there seemed to be no hurry and no confusion, and to a person who did not know that a meal was being served, one would not think that trays were being delivered to more than 100 patients at the rate of almost three per minute.

When the zero hour for meal time arrives, the menus are distributed to the trays. In machine-like fashion cold foods first are placed on the trays, then the hot foods, and finally the beverages. The dietitian with the menu for a particular tray checks it as it is placed in the service lift. All this is done almost as quickly as it can be told, and the trays are lifted to the designated floor, where the floor service maids are waiting.

Careful Planning. In a recent issue of *Modern Hospital* magazine, Lulu G. Graves takes up the question of careful planning as follows:

> Grouping the divisions in the first of the above lists, including the dining rooms, on one floor promotes ease and rapidity of work. This is particularly true in the smaller hospital, where vertical deliveries are feasible.
>
> Interdepartmental cooperation has been more successfully accomplished in small hospitals, where a more intimate contact with the patient is also possible. Concentrating the work in one place not only facilitates the serving of meals but stimulates these other interests.

The divisions in the second list represent a more specialized work and need not be included in the group, although the fewer the bases of supplies, the greater the economy.

Location. For the small and medium-sized hospital, the first floor will generally be found to be the best location for the dietary department. For the large hospital, a separate service building is desirable, if possible. The first floor is accessible for delivery of supplies from the outside, and also for various contacts with other departments inside. With the progress in systematic business administration in hospitals, and the now common practice of dietotherapy, these contacts between the dietary department and other departments of the organization are becoming important.

The first floor provides for economy of administration; good lighting and ventilation; convenient arrangement of dining rooms which may be made pleasant and comfortable; and, last but not least, good service.

Top Floor. The top floor has the advantage of being well lighted and cool, if properly built. The kitchens are pleasant to work in, and the dining rooms are attractive, quiet, and restful. This plan is not generally adopted, because of the additional cost of construction and increased cost of operation. When finances permit, the psychological effect, the atmosphere of cheer created during the meal hour, and its effect on the personnel as they return to duty, justify the expenditure.

A basement having artificial light and ventilation is not the place for a dietary department. If in the building program it seems necessary to put this department below the street level, there should be sufficient excavation to permit of some natural light.

Dark, underground kitchens are apt to have many pipes and other construction devices that take up much space, and in most instances are difficult to keep clean and sanitary, besides being cumbersome and unsightly. Kitchen employees are human, and in common with all human beings they are apt to have the same attitude toward their work as is shown by the authorities in the organization. If the workshop indicates negligence or indifference, the workers will show these same traits.

Dietary Department. Probably no other department affects hospital architecture more than the dietary department. Designing kitchens is not a simple task that may be performed by anyone, as it was once considered to be. No kitchen plan and equipment should be completed without the judgment of some one familiar with the details of work to be done in it. It is pretty general practice to leave the planning of the kitchen largely to the architect, and the planning of the equipment to a representative of an equipment house. Both of these authorities are essential, and their judgment is good so far as their experience goes, but neither of them is familiar with the numerous details that are necessary in the day's work and that play no small part in making or marring efficient service.

Errors. For example, the arrangements in one dietary department recently visited necessitated many of the dishes being carried across the entire length of kitchen and hall four times during every meal. When the dishes were brought from the floors, they were transported across this space to be washed; when washed, they were carried back to a room near the elevator to be stored until the next meal; later, the salad plates, dessert dishes, and all dishes for special orders were taken the entire distance to the preparation room, and returned to be placed on the trays. There was no reason why all these rooms could not just as well have been placed on the same side of the kitchen, and the rooms adjacent to the tray service room been located on the opposite side. The time and labor lost in this useless travel is appalling, and this great loss will continue for many years. Yet this was a good-looking kitchen, well equipped, and, to the casual observer, modern and fine.

Excess Equipment. On a visit to the dietary department of a large public hospital completed about a year ago, approximately $6,000 worth of equipment was noted which had never been used and never will be used, but it will stand in its place to be kept clean and to be cleaned around, indefinitely. These are but two illustrations of situations that are common.

On the other hand, it is gratifying to find a number of departments that are adequate and that serve their purpose well. Cooper Hospital, Camden, N. J., is one of these. Helen Markley, chief dietitian at that hospital, says both kitchens are "working out very well, and there is nothing I would care to change, or have different, except larger wheels on the tray trucks." When no greater mistake than that can be found, after nearly a year's use, it comes near to being a satisfactory kitchen.

The dietary department in the Toledo Hospital, Toledo, Ohio, is another in which the arrangement of rooms and grouping of equipment are such that no unnecessary steps are taken and no time is consumed in fruitless effort. It is gratifying to be able to state that in both of these hospitals the dietitian was called into council. Again, we might say these are but two illustrations, but there are many departments that are well planned and are functioning well under the management of a competent head.

Not all dietitians are prepared to pass on plans, but if the local dietitian is not qualified to do so, there are others to whom appeal may be made. A competent chef will be able to give helpful suggestions, and we are looking forward to the time when every hospital will have a competent chef.

Hotel Service Kitchens. Most European hotels have a service pantry on each floor. This is necessary because of the great amount of room service. Hotels in America that offer continental service have the same system. So do most residential and many apartment hotels.

It is an expensive feature and one that seldom pays its own way, when floor space, dumb-waiter space, and upkeep, labor, and other expenses are taken into consideration. Modern methods of food transportation make floor pantries unnecessary.

There is a legitimate place for service kitchens in connection with banquet rooms, a series of private dining rooms or public dining rooms, at a distance from the kitchen. Such kitchens make it possible to serve large quantities of food in good condition, and to handle dishes with the least amount of noise and confusion.

Service elevators from the main kitchens should lead directly into the service kitchens. Equipment in the kitchens should make it possible for waiters to be served promptly and without retracing steps. And soiled dishes must be handled without lost motion. Practically, the service kitchen should be planned on the same principles as the preparatory kitchen. And the same points must be kept in mind regarding ventilation and noise. Neither noise nor odors should get into the dining rooms.

Quota Stock. In many hotel service kitchens a full quota of stock is kept for the dining rooms, being served from it. The china, silver, and utensils are washed in the same room, and never taken from the department. A complete inventory is taken after each banquet. This is not as difficult as it seems, for all china, glassware, and silver is stored in unit compartments, each unit holding a certain number. If there is a shortage, it is found at once, so that a check-up can be made.

This system of operation is advisable when the service kitchen is being used daily. Naturally, the depreciation, floor rent, breakage, etc., of the department should be charged against the income in this department. Otherwise, it is impossible to know whether or not a profit is being made in the dining rooms served from the service kitchens. Many hotel managers who think they are making a profit from banquet rooms and private dining rooms will learn differently if they estimate the actual expense of selling food for this service. Add to that cost the rent that might be obtained from the private dining rooms, banquet rooms, and service kitchens—then it becomes obvious that banquets, even at a good price, are not so profitable.

For these reasons it is necessary to study carefully food requirements in a proposed hotel. If all food can be served from the main kitchen, without the use of service kitchens, it will be much easier to show a profit from the catering end of the business.

CHAPTER VII

TRANSPORTATION AND COMMUNICATION

Everything that is made in the kitchen must be transported several times. First the food is moved from the receiving room to the storerooms. Then to the kitchen, where it often makes several moves in different stages of preparation.

While food is in the process of manufacture, problems arise that make it necessary to communicate with those who do the work. Whether or not both these functions are carried on efficiently depends a great deal upon the architect who designed the house and the department heads. They should never forget that this is the factory end of the business. Food must be received, stored, transported, and prepared with the fewest possible movements and in the least amount of time.

Generally, transportation includes:

Receiving food and other merchandise in receiving room.
Unpacking and weighing.
Moving to storerooms.
Placing on shelves.
Removing to kitchens for preparation.
Movement in preparation.
Removal of garbage.
Conveying of dishes to and from dish washers.
Conveying dishes to warmers.
Conveying food to rooms and service kitchens.

When the receiving department is in the basement, it will be necessary to have a large freight elevator, chutes, or a conveyor to speed up deliveries. As most of them come before 10 A.M., it is necessary to get merchandise out of the way quickly. Otherwise the entrance becomes blocked and trucks cannot park in the street or alley. Congestion at the receiving door slows up deliveries so much that dealers claim that drivers spend more time waiting for a chance to get in than they do for the actual delivery. Naturally this increases the cost of merchandise.

Whatever the method of transportation at this point, it should be next to the platform scale so that little or no interior trucking or handling is necessary. Tables and hanging scales should be arranged to permit quick sorting and weighing.

Trucks. Trucks should be large enough to hold as much as the average man can haul alone. But trucks should not be so wide that persons cannot pass in the corridors.

Wheels should have rubber or fiber tires and the platform should be heavy enough to stand a great deal of abuse. Recent tests showed that a man can haul a 40-per-cent larger load on a truck with ball or roller bearing wheels than with those having ordinary cheap wheels. The necessity for fewer trips soon pays the difference in cost between a cheap and a high-grade truck.

When merchandise has been checked and weighed it should be marked for the proper department. This facilitates deliveries and reduces the number of handlings.

In storerooms where ceilings are high and shelving can be built to the ceiling it pays to have sliding ladders for each row of shelves. Goods can be stored more quickly and there is less danger of damage and breakage due to falling merchandise. Also it protects the storeroom men.

In one kitchen where I am a frequent visitor, only large single-platform trucks are used to deliver goods from the storerooms to the kitchen. This large truck takes up practically all the space in the freight elevator. A two- or three-deck truck of a smaller size would hold much more. It would speed up service also, because an extra elevator trip must now be made when two trucks are ready to be run on at the same time.

With double- or triple-deck trucks, both could be taken on the same trip.

When conveying food to service kitchens or from the bakery, it often becomes necessary to use trucks with several decks. These are often inclosed in heavy mesh screen with doors on one side that can be locked. This prevents theft while the food is en route.

There are several methods of conveying food to service kitchens on upper floors.

1. Freight elevator
2. Dumb waiters
3. Conveyor system

If a freight elevator is used it will be necessary to have special containers that keep the food warm. If the service kitchens are quite high up, it is advisable to have a special high-speed electric elevator. In either case it is advisable to use special food containers.

Conveyor systems for this purpose are comparatively new. Unless special containers are used or the service is speedy, the food cools before it reaches its destination.

It is in the handling of clean and soiled dishes that conveyors become a necessity. An efficient installation carries dishes from the busiest part of the dining room direct to the washer. The same equipment transports clean dishes from the washer to the department or departments where they are needed.

With this system the dish-washing department can be placed in an out-of-the-way corner where noise and odors can be controlled.

The receiving end of the conveyor can be housed in a neat, attractive case that is directly over the washer, or a belt conveyor inclosed along the wall or ceiling will carry the dishes to any distant point. The equipment is so flexible that it can be made to fit all conditions. The cost ranges from a few hundred to several thousand dollars, which can be saved on payroll, reduced breakage, and greater speed.

In many modern kitchens warm-dish containers are placed on wheels, so that the containers can be filled direct from the dish-washer and then wheeled to the point where the dishes are to be used. Certainly this is better than carrying the dishes by hand.

Garbage cans should also be on wheels, so that they can be moved easily and without a great deal of noise. It is a good idea to have all movable equipment on wheels or casters. This includes some electrical equipment such as small mixers, small ice box for steaks or special foods being prepared regularly, mop pails, soiled linen hampers, coal buckets (if coal is used), milk cans, heavy vegetable containers, etc.

Communication. I have predicted that the time is not far distant when orders to the cooks will be given by electricity. The present system survives because it has been accepted. Some day a clever engineer or a practical kitchen man will invent a noiseless workable system.

Preliminary to that we now have loud-speaking telephones, telautographs, teletypes, tube systems, and the telephone.

Every large institution should have an intercommunicating telephone system with a connection for each important department.

Loud-speaking telephones for food service are comparatively new. The service consists, essentially, of a master station (in appearance an ordinary telephone, with a separate control box) and a combined loud speaker and sensitive transmitter.

The master station is located on the desk or wherever desired, and loud speakers fastened on walls of the departments where needed are connected by means of a series of switch keys on the control box, each key connecting with one speaker. The loud speakers are equipped with push buttons for signaling the different master stations.

When a call originates at the master station, the party calling presses the proper key in the control box, takes up the phone, calls the name of the desired party, and proceeds with the conversation. There is no waiting, no confusion, no loss of time. The voice of the person answering is picked up from any place in the room by the sensitive transmitter in the loud speaker and reproduced in the receiver of the phone.

If the call originates at the loud speaker, the proper push button is pressed, which operates a buzzer and a signal in the control box of the master station called. The master station establishes complete communication by pressing the corresponding switch key and uses the phone as usual.

Thus a waiter can signal the cook, or a cook the steward, and so on without leaving his station.

The telautograph and teletype are used in city institutions where it is possible to get maintenance service.

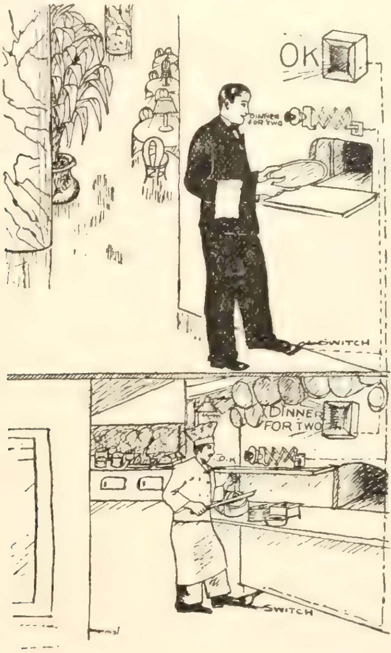


Fig. 27. Loud speaker telephone from dining room to kitchens.

Orders are transmitted to the department heads and at times to the one who calls the order in the kitchen. Before installing any of these systems it is advisable to study them in operation under circumstances similar to your own.

Pneumatic-tube systems are used a great deal in large houses. They are used to send reports, invoices, and other records to the auditing department, but as a general rule they are of little value to the "back of the house."

The all-important idea to keep in mind is that merchandise and messages must be delivered with the greatest speed and with the least cost, noise, labor, and motion.

CHAPTER VIII

INSURING AMPLE VENTILATION

Good ventilation is more essential in kitchens than in dining rooms and other parts of the house. There are several important reasons: the excessive heat where the most important work is being done, clouds of steam that make work more difficult and cleaning more essential, cooking odors that find their way into dining rooms and other sections of the building, the drastic changes of temperature during the winter months when windows are used for ventilation, and the presence of more or less smoke at all times.

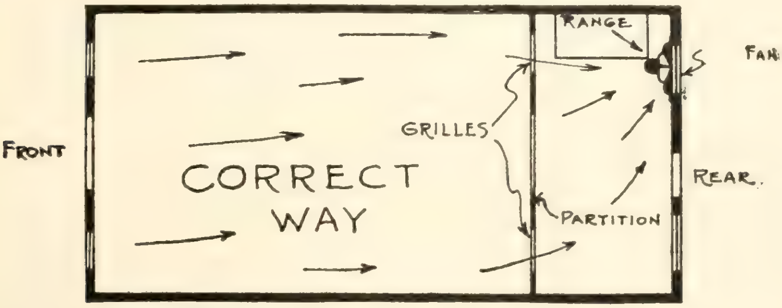


Fig. 28. This plan shows how odors, smoke, and steam are drawn out closest to the point where they originate.

Excessive heat decreases the efficiency of cooks. They soon become irritable and excitable. Clouds of steam hamper work in all departments and especially for dishwashers. Cooking odors make a "hash house" out of an otherwise high-class establishment.

Good ventilation overcomes all of these disadvantages, decreases labor turnover, keeps foods in better condition, and materially reduces absences due to ailments. It is obvious that food workers must not be allowed on the job when they are suffering from a contagious disease of any kind.

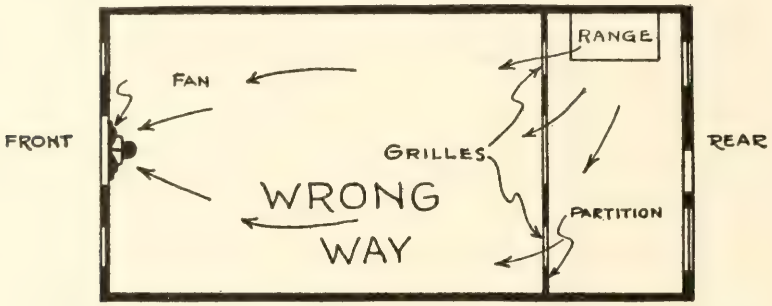


Fig. 29. On this plan showing the wrong placement of the fan, all kitchen odors are drawn through the dining room.

How Many Changes? Ventilating engineers suggest that a complete change of air should be made according to the following schedule:

In dining rooms—once every 3 minutes
In kitchens — " " 2 "
In storerooms — " " 5 "
In bakeries — " " 3 "

There are exceptions to these estimates. Kitchens with low ceilings, those of an irregular shape, those that are badly crowded, and those using oil for fuel often need a change of air every minute. I know of several cases where an independent fan is used in the dish-washing department and over ranges. These fans are used only during the hours when heavy work is being done—11 A.M. to 3 P.M., 5:30 P.M. to 9:00 P.M. These units change the air every minute, whereas the air in other parts of the room is changed every other minute.

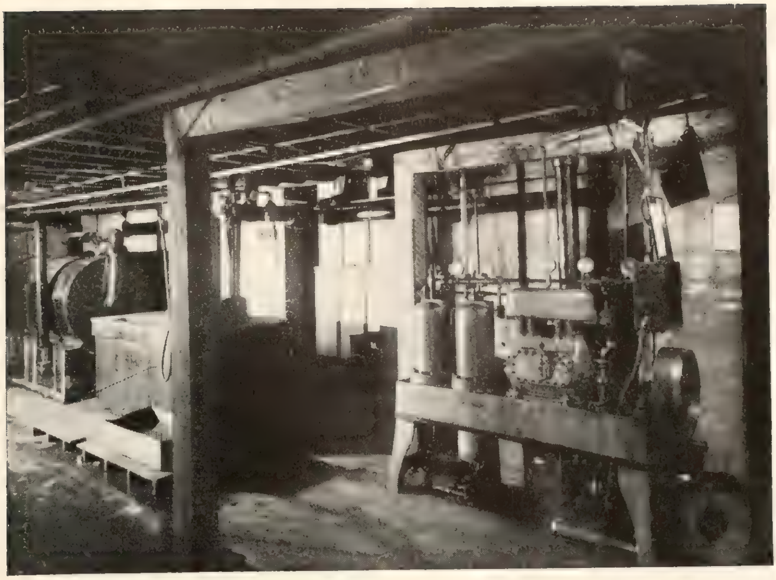


Plate 10. This automatic refrigerator takes care of eight units in a large cafeteria.

Plate 11. Electric refrigeration in a small hospital.

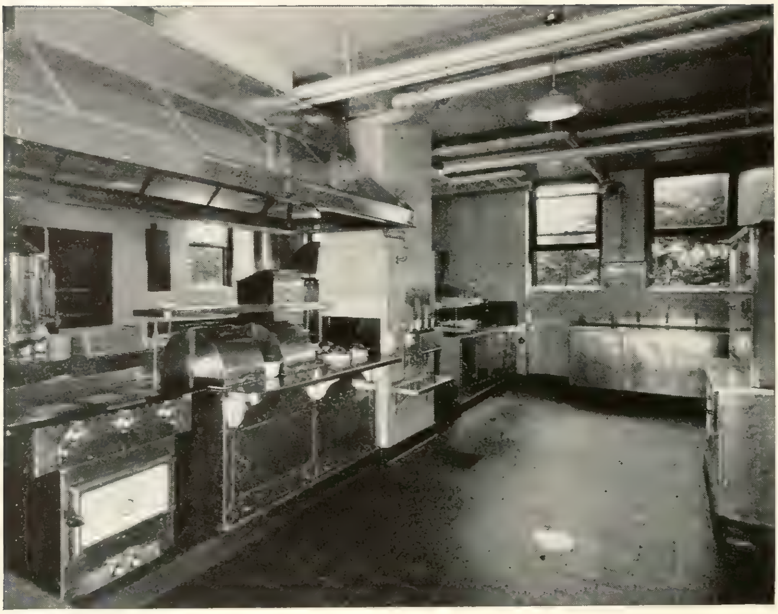


Plate 12. A center drain, raised equipment, tiled walls, and ample light make the Henry Ford Hospital in Detroit one of America's model institutions.

Generally, a kitchen equipped for electric cooking needs less ventilation than do those using other fuels.

In some kitchens, especially for those underground, it may be necessary to have fans to bring fresh air in from the outside. Generally, fresh air enters through doors and windows.

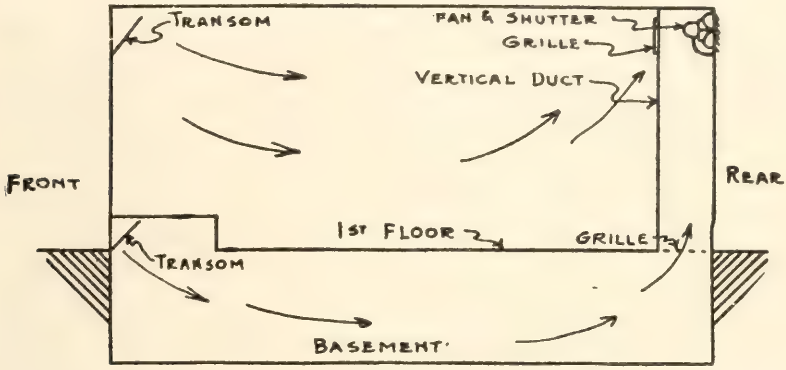


Fig. 30. A basement as well as the first floor can be ventilated by placing a fan in the rear of the building at the ceiling of the first floor with a vertical duct running to the ceiling of the basement as shown.

A grille should be placed at the ceiling in the duct on the first floor as well as in the ceiling of the basement. By dividing these grilles into size equal to the area of the fan and the amount of air desired for each room, a circulation can be created as indicated by the arrows.

There are three accepted methods of figuring air change. One is to get the cubical contents of a room and divide it by the number of air changes necessary. The results will give the number of cubic feet of air the fan must handle. As an example: the kitchen in question is fifty feet long, twenty-five feet wide, and has a ceiling height of twelve feet. Multiply the height by the width by the ceiling height—

50 × 25 × 12 = 15,000 cubic feet

This amount is then divided by the number of air changes desired. In this case it is a change every two minutes.

15,000 ÷ 2 = 7,500 cubic feet, which is the amount a fan must handle to give a complete change of air every two minutes.

The second, which it is suggested should be used as a check on the above method, consists of multiplying the area of the mouth of the hood in feet by 150, which is the velocity of air necessary to successfully catch and exhaust the heat and odors. The third method is to multiply the length of the hood by 500. An average of the results of the three methods may be adopted as being the required volume to be exhausted.

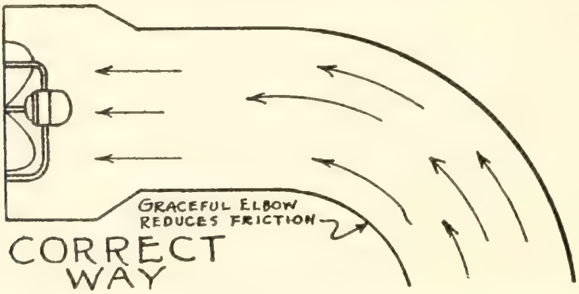


Fig. 31. The correct way to make a bend so that air is pulled around the corner without assistance.

Location. It is very important to have fans located in the right place. Air must travel over the area to be ventilated, so that there are no "pockets" or "dead spaces."

In kitchens the fan should be placed above or as near to the range as possible. When ranges longer than seven feet are hooded, it is not uncommon to find them installed with a single exhaust opening and branch duct.

While good ventilation is thereby provided over the area in the immediate vicinity of the exhaust opening, other sections of the hood are likely to be insufficiently cared for. This follows the principle of exhausting heat, odors, and steam at the point where they originate. The same holds true in the dish-washing department.

By placing grills or registers in the partition separating the kitchens from the dining rooms, the air is pulled through the entire length of the room. There should always be two grills of liberal proportions in the partition, toward each side of the room. If a proper-sized fan is installed, no windows in the kitchen need be opened. In fact, they lower the efficiency of the ventilating system.

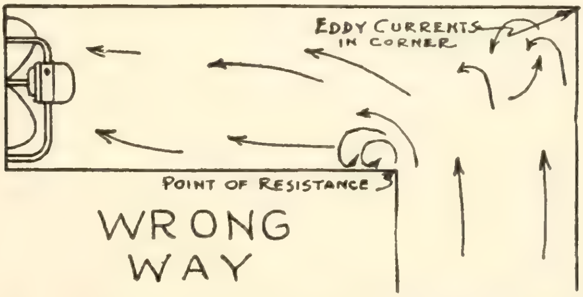


Fig. 32. A right angle bend causes six times as much resistance as a curved bend.

Other things to avoid are:

Screens. It is not practical to use fly screen on the outside of propeller fan. Dust, grit, grease, etc., soon clog the openings, so that it is impossible for air to get through. The screen offers 50-per-cent resistance even when it is clean.

Doors or Traps for Shutters. Never use a door on the outside of a fan. It may not be open while the fan is running, thereby creating undue resistance which overloads the motor. Often these doors are blown shut, so that there is no ventilation and the motor is overloaded. Therefore it is advisable to have automatic shutters that open and close with the operation of the fan and that will close automatically in case of a fire in the duct.

Construction. Where propeller or disk fans are installed with a short amount of duct work with a right-angle bend, it is necessary to have no square corners. The proper and most efficient way to pull air around a bend is to have a graceful curve that permits air to flow around with very little resistance. A right-angle bend without a curve causes six times as much resistance as a curved bend. Naturally this wrong method reduces the efficiency of the system.

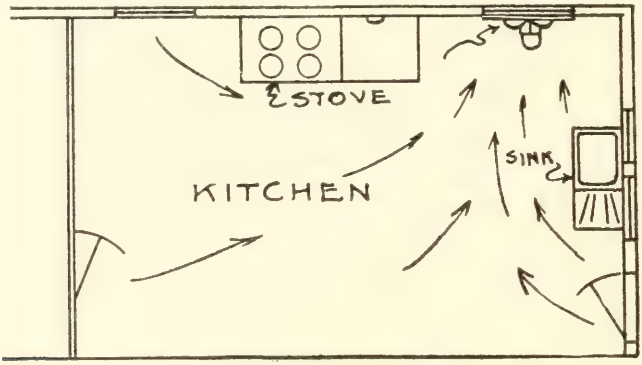


Fig. 33. Where it is impossible to install a fan directly in the wall, it can be placed in the window with a separate panel, or with a portable panel. The illustration shows how it should be placed so that the fumes and heat from the stove will be exhausted directly to the outdoors before they have a chance to circulate elsewhere.

Square corners are less expensive to construct, but in the long run they are expensive to the operator.

Propeller or disk fans are not designed to exhaust air through any great amount of duct work. At the most, no more than thirty feet of duct should be used. Then it should be no less in diameter than the fan. If anything, it should be a few inches larger so as to reduce friction to the minimum.

It may be briefly stated that the added frictional resistance resulting when disk or propelling fans are connected to long ducts increases the electric current consumption of fan motors in some cases as much as 300 per cent, as contrasted with that required when the same fans discharge freely outdoors.

With fans twenty-four inches in diameter and smaller the extra-current cost is not great. With fans thirty inches in diameter and larger, electric-power cost becomes a serious consideration. The cost of operating a one horsepower motor under full load requires 740 watts per hour (0.740 kw.), the cost of which to the manager or owner is about seven cents per hour. As compared with a three horsepower motor the extra cost would be fourteen cents per hour. If the fan were operated eighteen hours a day, the daily cost for extra power would be $2.52. That would be a considerable item in a year's time.

Wherever it is necessary to convey air from distant points through ducts and discharge it to the outside, a blower system should be used. Practically all large institutions use such systems that can also be reversed to take in fresh air or draw out foul air. In one hotel where I was employed we could bring in cold dry air, cold moist air, warm dry air, warm moist air, or perfumed air either warm or cold.

The ideal blower system can be hung suspended from the ceiling or side wall or set on a platform. This system is necessary when air is to be discharged on the roof or at some distance from the outlet. Generally, propelling or disk fans can be used where little or no duct work is necessary.

Blower systems are the most efficient where duct work is necessary.

Oscillating wall fans or rotating ceiling fans in kitchens only serve to keep air in motion. They do not ventilate.

Installation. When ranges are less than six feet long it is rarely necessary to install hoods over them, though this is often done when city ordinances do not permit exhausting into alleys or streets. Otherwise, fully as good results may be obtained with less expense if propelling or disk fans are installed near the range in walls or windows. Ranges seven feet or longer would best be provided with a galvanized iron hood not lighter than twenty-four gauge. Hoods should be equipped with branch ducts six or eight inches in diameter, located in the top of the hood at the center. Common faults in the design and location of such branches are their location at the ends or sides of hoods, rather than on top, and smaller than six inches in diameter.

Be sure that the fan is large enough to take care of the volume. This means that you must take into consideration losses due to ducts and turns in them. Estimated air changes do not take these into consideration.

When fans are too small, the motors have to operate at high speed. They are then noisy, while the cost of current will, in most cases, exceed that possible if a fan next largest in size is substituted to run at a lower speed. The current consumption varies according to the amount of air being exhausted, and it does not follow that larger fans at lower speeds require more horsepower than smaller ones at inefficient high speeds. Although by far the larger numbers of electric motors installed in kitchens are without speed regulators, their use is advisable. They can be installed at small cost when motors operate on direct current, and afford a 50 per cent reduction in speed.

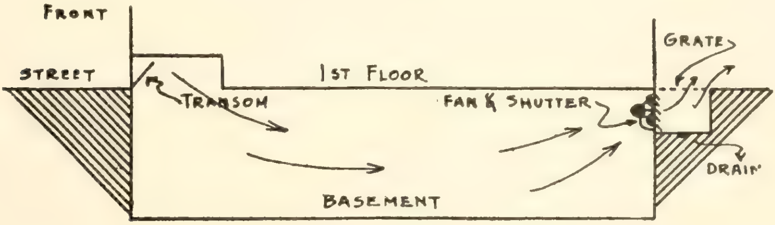


Fig. 34. Here is a propelling system which is often used in basements where there is a transom in the bulk head at the front. There is also an opening with a grating in the rear. By placing the fan in this rear opening, the air can be exhausted up through the grating and the fresh air pulled in at opening in front through the transom windows as indicated by the arrows.

The value of such an accessory comes from the saving in power when not so many changes of air are necessary.

A ventilating system need not be expensive unless the installation is a large one. Like many other pieces of equipment, it is the upkeep and operation that make it expensive. For this reason the purchaser should know what he is buying and be willing to pay a fair price for performance. He should buy only that which has a good record in institutions similar to his own. The salesman should be able to tell him what the cost of operation will be. He should guarantee a perfect installation, and it should not be paid for until it does all the company claims.

After that it is up to the owner to have it kept in good condition. In large institutions this comes under the direction of the engineer's department. The chapter on maintenance includes the inspection and cleaning of the ventilating system.

CHAPTER IX

MODERN REFRIGERATION

AUTOMATIC refrigeration is cheaper than ice. This is the experience of those whom I have interviewed and the ones who replied to a questionnaire mailed to readers of several institutional magazines.

Many of them credit automatic refrigeration with a direct saving over the cost of ice. All of them admit that it reduces spoilage, keeps food in better condition, permits the purchase of larger quantities of perishable food, is more sanitary and less bother than ice. Several readers mentioned the advantages of having many ice boxes in different parts of the back-of-the-house, all refrigerated from the same unit. Still others gave examples of its use for ice-creams, milk, etc.

Five Factors. There are five factors that should influence the purchase of automatic refrigeration, writes F. B. Riley, technical editor of *Electrical Refrigeration News.* They are:

> First, the machine must have ample capacity to handle the work required.
>
> Second, the insulation of the cabinet, room, or appliance, must be of known quality. Do not guess at the amount of heat passing through the walls every twenty-four hours. The heat transferred through the walls constitutes about 80 per cent of the total work.
>
> Third, the coils, or tank surfaces, in the rooms, or cabinets, must have ample surface to absorb all heat leakage plus the other work. Figure these surfaces, not for the average temperature, but for the extremes of hot weather.
>
> Fourth, circulation of air around the cooling surfaces and thence around the stored goods must be free and unrestricted. Many an otherwise good installation has been ruined by choking the circulation.

Fifth, the human element must enter here to a great extent. An installation may be figured down to a nicety and all the first four factors harmonized and then the erecting engineer can spoil the harmony by careless workmanship and indifference to the small things which are so important in refrigeration work.

The customer is chiefly concerned in buying a definite service and is little concerned in the type of system employed so long as it renders service. Many manufacturers think of the design as being of paramount importance to the purchaser. Any refrigerating plant designed for small commercial work should embody the following factors:

(a) The equipment should be reasonable in cost.
(b) It should be economical to operate (as compared with ice).
(c) Reasonably free from service difficulties.
(d) It should produce dry air in storage compartments.
(e) It should give absolute control of any desired temperature.
(f) It should be simple in construction and easy for unskilled operation.
(g) It should be safe against damage to persons or property due to accident or negligence in operation.
(h) It should occupy small space. As compact as possible, without complicating the design or making it difficult to service when occasion requires.

Institutions must also keep in mind the question of uninterrupted service which means a local service station at hand. If they make their own power and employ an engineer, it is possible to use equipment of a different

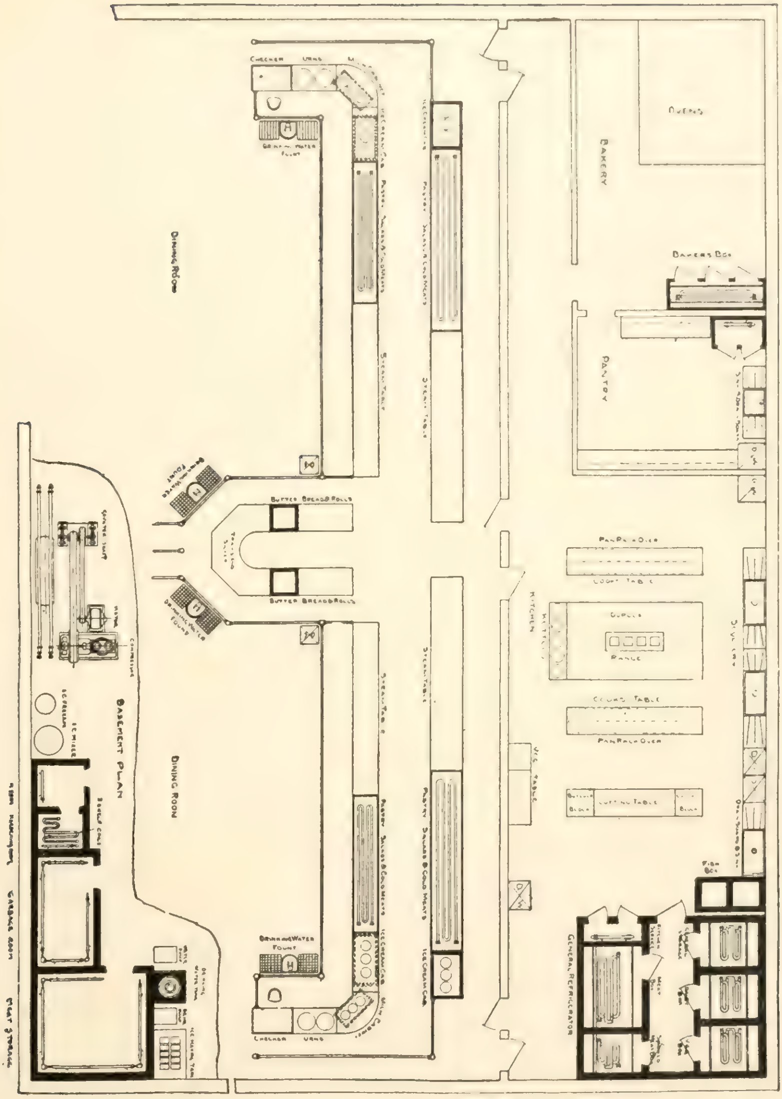


Fig. 35. Heavy lines show location of refrigerated area supplied by a central plant in the basement.

nature. It must take care of a possible overload because it may be necessary to enlarge the institution. For this reason it usually pays to purchase larger models.

Some institutions use several units in order to provide breakdown service. This is an excellent idea.

Noise and vibration are important factors if the machine is to be kept in the kitchen. The better machines are practically noiseless and vibration can be prevented by setting the unit on a concrete or stone base. It should, however, be placed so that it is easy to get at.

Amount of Refrigeration. The following notes give a general idea of how to estimate the amount of refrigeration needed:

One ton of refrigerating-machine capacity for each 1,000 cubic feet of kitchen service and storage refrigerators.

One ton of refrigerating-machine capacity per 5 to 10 ice-cream cans in serving counters.

One ton of refrigerating-machine capacity per each 10 to 12 seats for air cooling and conditioning for dining rooms.*

One ton of refrigerating-machine capacity per each 500 cubic feet of air circulated for cooling and conditioning ball rooms.*

One ton of refrigerating-machine capacity per 125 rooms for ice-making.

One ton of refrigerating-machine capacity per 60 rooms for drinking-water cooling.*

Drinking Water. One ton of refrigerating-machine capacity per each 1,000 gallons drinking-water cooled from 75° to 40° F. per day.*

Pipe-line Losses. One ton of refrigerating-machine capacity per each 1,000 linear feet of drinking-water piping.

One ton of refrigerating-machine capacity per each 750 linear feet of brine mains.

NOTE.—The above allowances NOT marked thus (*) are based on continuous operation of the compressor for twenty-four hours per day. To determine the size of the plant for a daily operating period of less than twenty-four hours, multiply the results obtained from the above allowances by twenty-four and divide by the number of hours the compressor is to operate which will determine the size of the compressor for any desired operating period.

The results obtained when using allowances marked thus (*) will give the required capacity of refrigerating compressor for any daily operating period of twenty-four hours or less.

Automatic refrigeration can be no more efficient than the boxes in which the food is kept. A cheap box is an expensive bargain—and you will never know it unless you check your costs.

The outside case should be of hard wood or metal. Next to this two layers of heavy asphalted paper, then two inches of compressed cork board, two more layers of asphalted paper, one-half inch of hardwood wall and a lining of porcelain, white enamel, or galvanized steel. A well-made box is comparable to the above specifications. Do not let a salesman sell you a box which does not come up to definite specifications.

Refrigerator doors must fit tightly, which means that strong snap locks should be used. Large, specially built boxes must have lights. A warning light should indicate when these have been left on in the boxes.

Special boxes should be kept for meats, vegetables, dairy foods, fruits, beverages, salads, and fish.

The boxes should be placed in the most convenient location, but not next to ranges, as I have found in some restaurants.

In selecting sizes be sure that boxes will be large enough to prevent crowding. Much spoilage is due to foods being packed in so that the cooks do not take the trouble to make use of left-overs. Some institutions have special *day* boxes in which nothing but daily needs are stored.

The following installations are indicative of box sizes and the temperature at which they must be kept.

New Southern Yacht Club

NEW ORLEANS, LA.

General storage refrigerator
10′x8′x10′ (36°)

O. Henry Hotel, GREENSBORO, N. C.

Basement refrigerator	20′x7′x9′	(35°)
Bakery box	2′6″x7′x7′	(40°)
Bakery box	3′x6′x7′	(40°)
Oyster pantry	2′6″x5′x7′	(38°)
Serving-pantry box	3′x7′6″x7′	(40°)
Butcher box	16′x6′x9′	(36°)
Butcher box	9′x3′x7′	(40°)
Mezzanine-floor refrigerator	3′x5′x6′	(40°)
Second-floor pantry box	3′6″x2′6″x6′	(40°)
(200-lb. Ice-making tank)		
Drinking-water system (1,000 gallons)		

Fred Harvey, LA JUNTA, COLO.

Chef's refrigerator	6′x10′	(35–37°)
Dining-room refrigerator	5′x11′x10′	(35–37°)
Display refrigerator	20″x4′2″x5′	(40–45°)
Display refrigerator	20″x7′x5′6″	(40–45°)
Baker's box	3′x4′6″x7′	(40–45°)
Provision box	20″x4′x7′	(40–45°)

Cut-meat box	1′4″x3′x1′10″	(40–45°)
Cut-meat box	1′4″x4′9″x1′10″	(40–45°)
Fish Box	1′4″x4′9″x1′10″	(32–34°)
General box	5′3″x3′3″x10′9″	(35–37°)
Ice-cream cabinet	1′6″x3′9″x2′6″	(24–26°)

PIG'N' WHISTLE, SAN FRANCISCO, CAL.

Meat box	9′x6′x10′	(35°)
Cream box	9′x6′x10′	(35°)
General refrigerator	9′x6′x10′	(40°)
Ice-water tank	3′x2½′x2′	(35°)
Brine tank (3 comp.)	8′x16′x2′	(10°)
	(0°)	(15°)
4 ice-cream cabinets	2′x3½′x2′	(15°)
Soda and water coolers	2½′x2′x2′	(40°)
Back bar	16′x2′x3′	(40°)
Kitchen refrigerator	4½′x3½′x9′	(40°)
Kitchen refrigerator	2½′x3½′x9′	(40°)
Kitchen refrigerator	1½′x3′2″x9′	(40°)
Salad counter and cold plate	3½′x7′x3′	(40°)
Dish cooler	3½′x9′x3′	(40°)

Candy-maker's refrigerator ice-making tank, 200-lbs.

The care of machines and boxes is very important. Where an engineer is employed the machine is under his charge. The boxes must be taken care of by some one in the chef's or steward's department. See chapters on Maintenance, Job Analysis, Manuals and Sanitation, for information on upkeep of boxes and machines.

WHAT OTHERS SAY

"Our electric refrigerating unit cost $550. We paid for that out of savings, in less than eighteen months."

CARL STANDER.

"Springs, or door-closers, should always be applied to the ice boxes, and the inside of the box should be arranged with baffle plates so that the air will circulate, otherwise the box will sweat, with disagreeable results. Cement floors are the best and they should have a drain pipe emptying outside the box over a sink or floor drain to remove the condensed water or water resulting from defrosting."

W. T. SMITH.

"The following example will give an indication as to the economy of artificial ice, made in the hotel plant, as compared with natural ice. A Western hotel had been buying ice and found that on the average fifteen tons a day were being consumed. A plant was installed and consumption was immediately cut to six tons per day. A check-up showed that this saving was due not to the smaller use of ice, but to the fact that there was no longer any waste in its handling and distribution."

EDWARD Y. DOW, M. E.

"In all hospitals where quantities of food are used, refrigeration is one of the first requisites in planning a well-equipped department. No one but the dietitian can appreciate the satisfaction of constant refrigeration temperature for storage over that of the old ice-box type, when the ice box was at the required temperature but once daily, and all foods were stored in the same box. We as dietitians hear much concerning left-overs; and very few of the small hospitals, as well as some of the larger ones, have enough refrigeration to take care of the daily supplies, much less the left-overs. Ample refrigeration is not only essential from the economical standpoint, but it is essential to protect the foods from contamination, a problem we often confront in institutional feeding."

MARGARET D. MARLOWE.

"Our various refrigerators are divided into compartments, each compartment being really a separate box with its own door and arrangement of shelving. There are no fixed shelves; instead, we use shallow trays and deep pans (depending upon the article to be stored), all of which slide easily back and forth in the compartments. No one ever needs to haul and push them in a contest of strength. On the front end of each of these trays and pans is lettered in black the name of the article that is to be stored in it. Sometimes a single tray will contain two different articles, in which case each half of the tray is clearly and properly lettered.

"Outside, on the front of the door to the compartment, and directly level with the tray inside, is placed a brass plate with the name of the food article on that particular tray or pan. Thus, there is no need for an employee to open doors and pull out half a dozen trays and pans to find what he is looking for; the name plate on the door immediately 'spots' it for him. There is never any fuss and fuming about 'where is this and where is that.' No matter how new or dull an employee may be, he cannot fail to work intelligently under this system."

C. A. WOOD.

Plate 13. A typical kitchen equipped with gas ranges. Gas leads in popularity for heavy duty cooking.

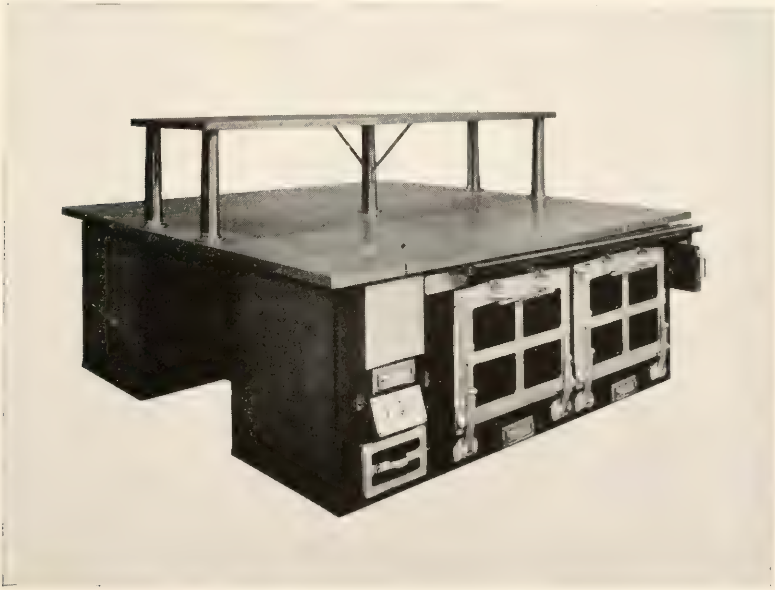


Plate 14. A sturdy center range for coal. Gas-burning models of the same construction are available in other styles.

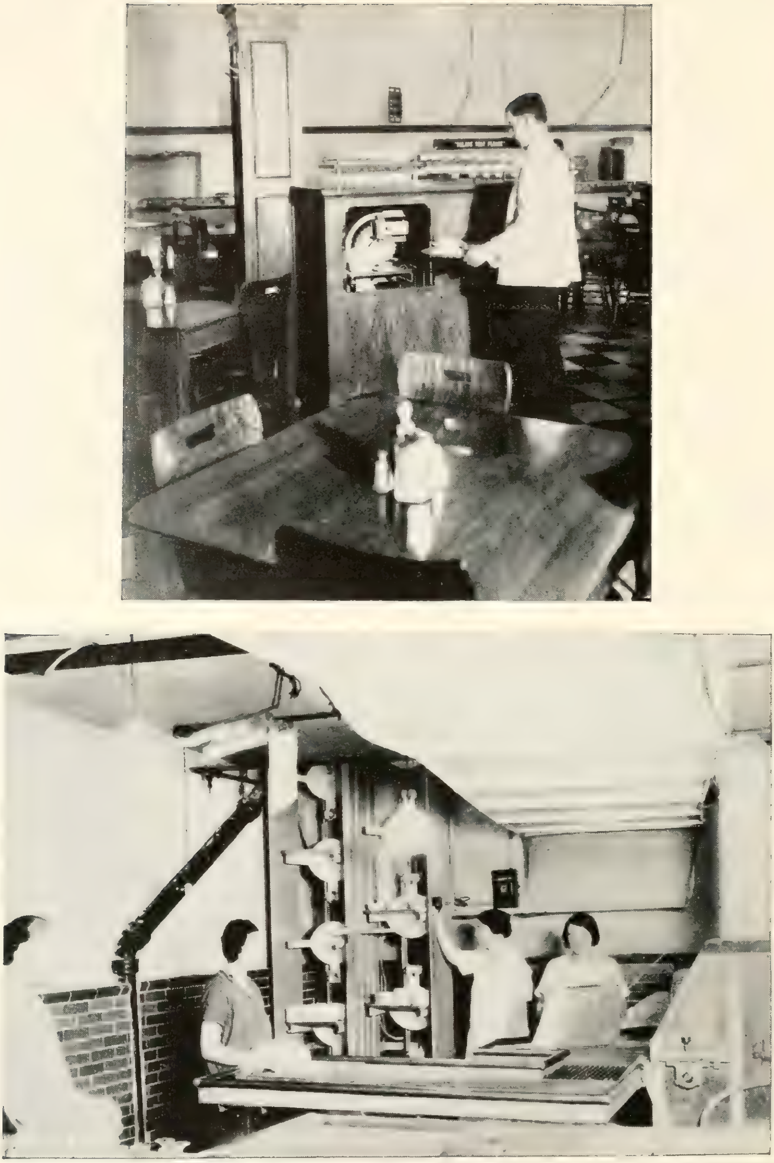


Plate 15. Two views of a new conveyor for dishes. The upper illustration shows the soiled dishes being placed in the neat cabinet in the dining-room. The lower photograph shows how it works in the dishwashing department.

CHAPTER X

LIGHTING UP THE DARK SPOTS

No one knows better than the steward, chef, and the cook that the present inefficiency of kitchen lighting causes waste, reduces the quality of food preparation and service, and increases labor turnover.

It is responsible for accidents, unsanitary conditions, and ill health. Nobody can work for very long under inefficient and artificial lighting without feeling excessive fatigue, eye strain, and eventually nervousness due to these causes. Therefore, it must be obvious to the thoughtful manager that this condition should be remedied. It costs more in the period of a year than the entire cost of installing an adequate system. Lighting should not be confused with adequate illumination. In general, kitchens have light enough, but it is not well directed. Good illumination is light so directed as to give the maximum benefit for the work at hand.

Adequate illumination costs no more than ordinary lighting. In fact, the same amount of light well directed where it is needed gives greater efficiency at the same cost.

Kitchen engineers and executives who understand this problem state that a survey should be made before lights are definitely located. It is necessary to know where the light is most needed before the outlets can be put in and what operations are to be performed in each location. This seems so obvious that it is difficult to understand the present system of placing outlets without any regard to equipment.

The writer has heard of examples which show the necessity for well-directed light. Employees have been known to have serious accidents on cutting machines, ranges, and motors, because a poorly placed light cast a shadow over the danger spot. One such accident in your kitchen is liable to cost you more in damages than the entire bill for a well-illuminated room.

Eye Fatigue. Adequate illumination is dependent upon the location of the lights, the size of globes, the type of reflectors used, the reflecting value of the walls and ceilings, and the condition of the globes and reflectors. From childhood we have been taught that the best position for reading is to have the light come from the rear, so that it shines on the reading material and not in the eyes. The same principle holds true in other lighting. Lights that shine in the eyes are certain to cause fatigue and, in many cases, serious accidents. An example of this is the effect upon the driver who approaches a car having glaring headlights. Another example is the temporary blindness that comes from looking at the sun.

Some people have the impression that bare lights in the kitchen give more illumination than those having reflectors. This is not the case. Bare lamps are inefficient because they do not focus the light where it is needed. People do not work on the walls and ceilings. Why, then, should most of the light be given off on those parts of the room? The proper kind of reflector harnesses the light to illuminate the desired area.

Lighting engineers recommended deep-bowl direct-lighting glass or porcelain enameled steel reflectors of the standard dome type. These can be cleaned and replaced quickly if the occasion demands. However, every manager should also study this question thoroughly. He should consider the shape of the reflector; whether it will tend to collect dust and grease; whether the surface is rough and hence a dirt-catcher that requires scrubbing to be made clean. Are there many parts to remove in order to clean the glassware properly and replace the lamps? Do the parts fit easily or are they held in place by small screws, clips, or other devices requiring considerable tinkering? Are they clumsy to handle, liable to break easily? These are some of the things which should be taken into consideration.

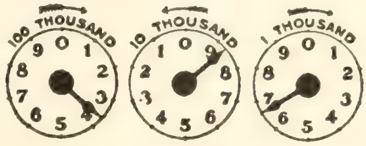


Fig. 36. The reading of the meter index above is as follows:

"1 thousand" or right hand dial..........	600 cubic feet
"10 thousand" or centre dial............	8,000 cubic feet
"100 thousand" or left hand dial..........	30,000 cubic feet
Complete reading of meter............	38,600 cubic feet

To check the result, read the meter again, but read from left to right, thus: three—eight—six = 38,600 cubic feet. This is probably the way the representatives of your gas company will read it.

And there are reflectors for different locations, depending on the type of work being done. Some spread the light over a broad area, while others concentrate the light direct on a working area.

Lamps should not be hung too low. They give off a great deal of heat that affects those who must work beneath them. Also, the globes can be stolen more easily and the breakage is greater when lights are hung low. An excellent system is to have lights on a pulley socket which makes it possible to raise or lower the lights as the occasion demands. An individual switch is also advisable.

How Much Light? The question of globe sizes is a difficult one to cover. So much is dependent on local conditions that it is advisable to experiment, in your own kitchen, until experience proves the practicability of a certain watt lamp for each outlet. However, lighting engineers can tell the amount of light needed and the proper sized lamps to furnish that light. In this connection it has been interesting to note the increased tendency toward the use of daylight lamps. These are practical in working over meats, toasting bread, decorating cakes, making candies, sugar pieces, and pastry, because they bring out the true color of the foods.

Before ordering lamps it is advisable to determine what average voltage is actually attained at the socket, where the voltage of the system fluctuates during the day or where it varies in different parts of the installation. It is proper to order lamps as near the average of this variation as possible.

While initially the installation may be correct as to voltage, on replacing or reordering additional lamps an error may be made in specifying the voltage of these lamps.

Mazda lamps are designed to operate at the voltage indicated on the label. This voltage rating takes into consideration renewal and energy costs. If the circuit voltage is appreciably higher than the label voltage, short life of lamps will result. If the voltage at the socket is considerably lower than that indicated on the label of the lamps, the lamps will not emit the proper quantity of light. Therefore, it is essential to study this carefully. Mazda lamps are so designed that when operated under proper conditions they should give an

WHY YOU SHOULD CHECK UP ON YOUR ELECTRIC CURRENT RATE

A little investigation may reveal the fact that you are not receiving the lowest rate possible. The following schedule shows how the rates vary in New York City:

General Rate

Available for all Consumers for both Light and Power Purposes.

The first 1,000 kw. hrs. monthly or 32.876 kw. hrs. daily consumption at 7c.
Next 400 kw. hrs. monthly or 13.151 kw. hrs. daily consumption at 6c.
Next 800 kw. hrs. monthly or 26.301 kw. hrs. daily consumption at 5c.
Next 1,100 kw. hrs. monthly or 36.165 kw. hrs. daily consumption at 4½c.
Over 3,300 kw. hrs. monthly or 108.493 kw. hrs. daily the excess at 4¼c.

Wholesale Rate

This rate is dependent upon an annual guarantee to pay for 75,000 kilowatt hours, and stipulates that the monthly payments shall average not less than $312.50. Agreement is made that each year's bills shall not be over $3,750 for a consumption not exceeding 75,000 kilowatt hours.

The first 75,000 kw. hrs. consumed in each yearly period 5c a kw. hr.
Next 100,000 kw. hrs. consumed in each yearly period 4c a kw. hr.
Next 150,000 kw. hrs. consumed in each yearly period 3c a kw. hr.
Next 775,000 kw. hrs. consumed in each yearly period 2½c a kw. hr.
Over 1,100,000 kw. hrs. consumed excess in each year 2c a kw. hr.

The agreement in the Bronx is for 60,000 kilowatt hours annually, instead of 75,000 as in Manhattan Island, and the monthly minimum average bill is $250 instead of $312.50. Otherwise the two contracts are alike.

Refrigeration Rate

The first 2,500 kw. hrs. monthly or 82.191 kw. hrs. daily consumption at 5c.
Next 2,500 kw. hrs. monthly or 82.191 kw. hrs. daily consumption at 4c.
Next 5,000 kw. hrs. monthly or 164.385 kw. hrs. daily consumption at 3c.
Next 20,000 kw. hrs. monthly or 657.534 kw. hrs. daily consumption at 2½c.
Next 20,000 kw. hrs. monthly or 657.534 kw. hrs. daily consumption at 2¼c.
Over 50,000 kw. hrs. monthly or 1643.835 kw. hrs. daily the excess at 2c.

Fig. 37.

average life of 1,000 lighting hours. However, this is not always possible, nor is it always economical to get the full life from a lamp. When you take into consideration the price of the lamp and the cost of power, a lamp should be discarded when the bulb has become noticeably discolored.

Tests. I have had a great deal of experience in testing lamps sold at various prices. I have purchased imported, outlaw domestic, and standard Mazda lamps. These were tested side by side. In the long run the standard lamp was the most reasonable. If you want to try the test you have but to buy an assortment of lights, tag each one with the price and the date on which it was put into service. The results will begin to show on a meter test very soon and the naked eye can begin to judge after the first few hundred hours. It pays to buy standard lamps.

Costs. Good lamps do not consume a great deal of power. As an example, the following costs are those where current sells for 7 cents.

	10 Watt	25 Watt	40 Watt	50 Watt	60 Watt	100 Watt
Cost of current used for 1 hour........	1/14c.	1/6c.	3/10c.	1/3c.	2/5c.	7/10c.
No. of hours lamp will burn for 1 cent.	14 1/4	5 9/10	3 6/10	2 5/8	2 1/3	1 4/10
No. of hours lamp will burn for 7 cents.............	100	40	25	20	16 2/3	10

Much of the effectiveness of light is dependent upon the reflecting power of the walls and ceilings. Therefore, it pays to paint such surfaces with a high-grade paint that does not darken readily, and, in addition, repaint frequently and wash down the walls and ceilings every few months.

All lamps and reflectors in kitchens should be cleaned regularly. They soon become covered with a film of grease that collects dust and eventually reduces the lighting efficiency of lamps.

There are any number of cleaners on the market, but before these are used on a polished surface care should be taken to see that they are smooth, so as not to make microscopic scratches on the glass, also that they do not leave a film of cleaning material.

This cleaning should be done at stated intervals by some one person delegated to this work. Lamps should be washed at least once a month. At the same time burned-out and badly blackened lamps should be replaced.

Try This Test. Here is an interesting test tried on me by a progressive lamp salesman. I have since tried it on friends who feel that their kitchen operated at 100-per-cent efficiency:

Stand in your kitchen for ten minutes during the rush hour. Observe the lights, your walls, the shadows cast on machines, and the glare from poorly placed lights. Then take a look at some of the lamps. Usually you find the following: lamps covered with grease, sizes that are too large or too small, walls which do not reflect light, reflectors that are little more than shades, and any number of lights that should be turned out—if there were individual switches for that purpose.

In not over 60 of the 600-odd kitchens I have studied has the lighting problem been handled efficiently and economically. It is one of the many reasons why it is difficult to make money in the "back of the house," and the main reason why progressive managers are focusing their attention on this department. It pays in dollars and cents and personal satisfaction.

CHAPTER XI

STUDIES IN FUEL AND POWER

The kitchen is a factory. It may be large or small; efficient or inefficient. Regardless, it is a place where foods are assembled and manufactured into salable products.

Next to the cost of raw material and payroll, comes the cost of fuel and power, that which is necessary to convert raw material into delicious appetizing dishes.

Current cost in cents per kilowatt hour	Cost per 100 lbs. of bread baked
1.0	$0.09
1.5	0.135
2.0	0.18
2.5	0.225
3.0	0.27
3.5	0.315

Fig. 38. The table above shows the cost of baking bread at various current costs.

Of greatest importance is the fuel actually used to cook foods. This includes coal, electricity, gas, oil, steam, and wood. Which is the most practical and economical? Although knowing his own problem in most cases, not one of the 1,400 managers, chefs, and stewards whom I have interviewed during the past four years has given an answer that applies generally to all sections of the country.

The reason is obvious. Rates vary for different kinds of fuel. In very small cities there is no gas, and electricity is so expensive that it is prohibitive. Naturally, coal, wood, or oil is the only fuel to use. In other sections electricity is cheap. In such sections it does not pay to use any other fuel. On the Pacific Coast and in the South, oil-burning ranges are growing in popularity. In general, my observations are:

Gas is the most popular fuel for heavy duty cooking. Generally, coal and electricity are next in importance. However, coal is used only where gas or electricity is not available at a reasonable price. Coal is unsanitary and difficult to handle. Gas and electricity give a *quick,* even flame and are economical because they can be turned out when not needed and because there are no ashes or added space necessary for the storage of fuel. Time and labor are saved because no firing is necessary.

Institution	Power Consumption per day K. W. Hr.	Average Meals per Day	Watts per Meal	Rate per K. W. Hr.	Cost per Meal
Hotel—a la carte, cafeteria, coffee shop..........	1174	1645	714	1.5	$.0110
Club............	1186	3500	340	1.6	.0054
Restaurant......	1042	986	530	1.5	.0080
Cafeteria........	420	975	432	1.47	.0064
Hospital.........	232	1385	168	1.98	.0033
Hospital........	197	840	235	1.836	.0043

Fig. 39. The table above shows the average current cost to prepare each meal during the period of one year at several representative institutions.

Electricity is growing in popularity in all parts of the country where it is available, regardless of the cost. This is particularly true of specialized cooking. By specialized cooking I refer to toasting, waffle-baking, and so on. Much baking is also done by electricity, and in quite a few sections of the country all the heavy duty cooking is done by electricity.

Motor-driven Equipment. The National Electrical Manufacturers' Association gives the following advice regarding motors for electrically driven equipment:

> The life and successful operation of electric motors depend upon their proper installation and maintenance, as well as their proper design and manufacture. When machines are received they should be kept in a dry, clean place, especially when they are put in storage and are not installed immediately. Machined parts are slushed or painted before shipment to prevent rust. If machines are to be stored for any length of time, those parts should be inspected periodically to see that rusting has not started and should be reslushed if necessary.
>
> Unnecessary handling of machines at low temperature should be avoided, as castings are more easily broken at very low temperature than at normal temperature. When unpacking and handling machines the windings and other parts should be protected from damage. Machines should be thoroughly inspected as soon as they are unpacked, to see if they have been damaged in transit and to make sure that all parts, accessories, etc., are in the proper condition and position. All instructions and connection diagrams received from the manufacturer should be left with the machine.
>
> If the windings of a machine have been exposed to low temperature, they should not be uncovered until they have had sufficient time to attain a temperature nearly as high as that of the room in which they are to be unpacked. If this procedure is not followed, the machine will sweat.
>
> All electrical machinery not especially constructed to resist injury by moisture, should be kept dry. If a machine has been exposed to moisture, the windings should be thoroughly dried before the machine is placed in service. Small machines can be baked in ovens and larger units can be dried by passing current through the windings. In either case, however, the temperature should be kept within a maximum of 85° C. or 185° F. The temperature should be raised gradually and should be kept as nearly uniform as possible throughout the windings.
>
> In order to permit satisfactory operation, the location of machines should be arranged to meet the following conditions:
>
>> Protection from moisture, escaping steam, dripping pipes, oil, acid, alkali, chlorine, or other gases. Protection from dust, dirt, lint, or any other injurious substances.

Good ventilation and accessibility for cleaning and inspection with respect to the surrounding equipment. Motors should not be exposed to excessively high surrounding air temperatures—that is, air temperatures of more than 40° C. or 104° F.

Sufficient floor space for a belted exciter if used. All belts, chains, gears, couplings, and machines should be properly housed or suitably guarded, in accordance with the national, state, or local safety regulations in effect.

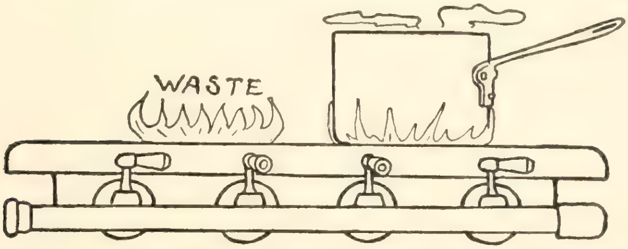


Fig. 40. An axiom of fuel saving is not to allow a burner to remain lighted without being in use.

Motor Protection. Motors must be kept clean, lubricated, and properly adjusted. This is a job for an expert. It never pays to let a novice assume these duties. The better method is to have all motors inspected monthly by an electrician. Payment should be on the basis of a flat rate per year, payments to be made each month after the regular inspection.

Be sure also that the motor you are buying is standard and large enough to handle an overload. Generally the salesman selling such equipment will take care of this for you, but it is well to be posted. This is true especially when you are buying complete equipment on a bid. An unethical dealer can often substitute in order to undersell other bidders.

Meters. I believe that in every kitchen there should be meters for gas, water, and electricity. There is no other method of checking waste and keeping accurate costs, and you will find it profitable to read the meters, not only to prevent errors, but because of the moral effect on employees. Also, it has been found that a monthly, weekly, or even daily check on the consumption of gas, electricity, and water as compared with food sales for the same period, has a tendency to prevent waste. This may seem like a detail, but the writer tried it in a small restaurant. It resulted in a saving of $1.10 a day.

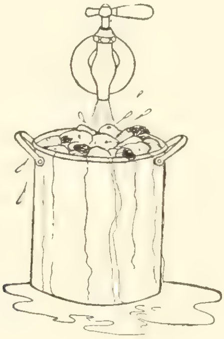


Fig. 41. This is the way hundreds of dollars are wasted a year. Somebody has to pay for the water.

Kitchen fuel averages but 2 per cent of your total costs. If gas or electricity costs 1 or 2 per cent more than coal, it is usually worth it in the other savings it effects. However, it is up to the manager to study local fuel costs and his particular requirements.

Ranges and other cooking equipment must be kept in good condition. Cost of operation mounts up and efficiency decreases as old age comes on, unless care has been the watchword. Care means cleanliness, periodic inspection, replacement of worn and broken parts, repairing of leaks, and tightening connections. Following is a list of ways to reduce gas or electric fuel bills:

Don't use the giant burner on your range when a smaller burner will do.

Don't light burners until you have food all ready to go on the fire.

Don't allow a burner to remain lighted without being in use.

Don't purchase from strangers so-called gas-saving devices without first asking your company whether they are of value.

Don't heat a kettleful of water when you only want a quart.

Don't use the ovens of your range for storage of food. This rusts the oven.

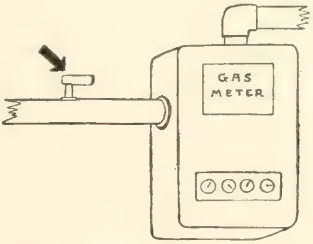


Fig. 42. Partly turning off the cock at the gas meter doesn't save gas. It merely lessens the pressure and interferes with good service.

Don't keep a full flame under container when water has reached the boiling point. Turn down the flame or set utensils over smaller simmer burner.

Don't turn off cock part way at gas meter. This does not save gas. It lessens the pressure and interferes with good service.

Don't use the burners if they pop or make a noise on lighting. Have your gas company adjust them.

Whenever possible, use the smaller-size burners instead of the large ones.

Turn out the gas or electricity in event there is an interval when it is not needed.

Keep burners of gas range clean by washing them in boiling water and soda at least once a month and have them dry before using. This will save gas.

Use the oven to its fullest capacity for baking.

Horse Power Requirement for Kitchen Appliances

Appliance	Boiler Horse Power	Lbs. of Steam per Hour
Stock kettles (per 10 gallons)	0.5	17.25*
Coffee Urns (per gallon)	0.1	3.4
Steam Tables (per sq. ft.)	0.05	1.7
Plate Warmer (per 20 cu. ft.)	1.0	34.5
Vegetable Steamers (per compartment)	1.0	34.5*
Clam, Lobster, Potato Steamers	1.0	34.5*
Egg Boilers (3 compartment)	0.5	17.5
Oyster Pots	0.5	17.5*
Bain Marie (per sq. ft.)	0.1	3.4*
Warming Ovens (per 20 cu. ft.)	1.0	34.5
Jets for Sinks (½ in.)	1.0	34.5
Dish Washer (2 compartment tub type)	2.0	69.0
Dish Washer (conveyor or roller type)	2.0	69.0
Silver Burnisher (Tahara)	2.0	69.0

Fig. 43. An interesting table for the kitchen manager who is interested in the engineering phases of the department.

Use triple saucepans set over one burner. You can cook three vegetables for the cost of cooking one. Ordinary saucepans will cook only one vegetable at a time.

A long, yellow, smoky gas flame is very wasteful. A small, blue flame is much hotter and requires less gas. If your burners give a yellow flame, have your company adjust them.

Data on Gas Cooking Costs

Type	Location	Meals		Gas per Month	B.t.u.	Gas per Meal on Basis of 525 B.t.u. Gas
		Per Day	Per Month			
1. Chain Lunch......	Montreal, Can.	25,000	750,000	1,190,000	600	1.8
2. Lunchroom.......	New York, N. Y.	1,800	54,000	160,000	600	3.4
3. Restaurant........	Auburn, N. Y.	250	7,500	31,800	545	4.7
4. American Plan Hotel..........	Atlantic City, N.J.	500	15,000	73,000	575	5.4
5. Hotel............	Detroit, Mich.	1,800	54,000	261,540	600	5.6
6. Hotel............	New Haven, Conn.	315	9,450	60,000	542	6.7
7. Restaurant.......	Springfield, Mass.	800	24,000	160,000	528	6.7
8. Cafeteria.........	New York, N.Y.	1,500	45,000	271,500	600	6.8
9. Restaurant.......	New York, N. Y.	2,500	75,000	450,000	600	6.8
10. Restaurant.......	New York, N. Y.	800	24,000	147,000	600	7.0
11. Restaurant........	Auburn, N. Y.	525	15,750	102,000	545	7.0
12. Hotel............	Springfield, Mass.	600	18,000	135,000	528	7.5
13. Hotel............	New York, N. Y.	7,000	210,000	1,442,800	600	7.9
14. Hotel............	Atlantic City, N. J.	900	27,000	195,000	575	7.9
15. Hotel............	Atlantic City, N. J.	1,200	36,000	273,600	575	8.3
16. Hotel............	Sioux City, Ia.	300	9,000	71,000	555	8.4
17. Cafeteria.........	New York, N. Y.	1,000	30,000	229,100	600	8.7
18. Restaurant.......	New York, N. Y.	1,000	30,000	237,600	600	9.0
19. Hotel............	Binghamton, N. Y.	900	27,000	225,900	585	9.2
20. Hotel............	Detroit, Mich.	1,500	45,000	388,600	600	9.8
21. Restaurant.......	Binghamton, N. Y.	250	7,500	73,100	585	10.9
22. Hotel............	St. Joseph, Mo.	105	3,150	34,650	570	11.9
23. American Plan Hotel..........	Sedalia, Mo.	137	4,110	49,260	570	13.0
24. Hotel............	San Francisco, Cal.	2,372	71,360	942,800	553	13.9
25. Bakery and Lunch.	New York, N. Y.	1,500	45,000	662,000	600	16.8
26. Restaurant........	New York, N. Y.	400	12,000	179,000	600	17.0
27. Hotel............	Binghamton, N. Y.	150	4,500	75,000	585	18.5
28. Hotel............	Sioux City, Ia.	358	10,740	208,000	555	20.4
29. Hotel............	New York, N. Y.	200	6,000	119,100	600	22.6

Fig. 44. Out of 29 installations on the list, you will note 17 using between five and ten cu. ft. per meal. The average is 7.6 cu. ft. Three installations are averaging under five cu. ft. and nine above ten cu. ft., but of these one must be omitted because it includes the baking. Examining the high fuel users we find that seven out of the nine serve less than 400 meals per day. The significance is that these hotels and restaurants are probably capable of serving many more people and are doing a short order business, making it necessary to have a large amount of cooking surface in action and using it for a limited time. If more meals were served and these extended over longer hours the gas requirements would undoubtedly be much improved.

If you are having trouble with your appliances or with your service, remember that your gas and electric companies are the proper places to register complaints.

Fuel bills can be reduced by doing as much cooking as possible when ranges are heated to capacity. Plan to use every inch of space on top of the stove and in the ovens.

Water bills can be materially reduced by putting new washers on leaking faucets, repairing all pipe leaks and those in toilets, and using the right amount of water for the purpose for which it is needed. In every kitchen in which I have worked an excess amount of water was always used for everything but cooking. There was an enormous waste of water used for washing vegetables, dishes, and floors.

Gas or Electricity. Some time ago Stanley Barnaby wrote in an article for *Hotel Management* magazine:

> Gas and electricity, when used in an intelligent and well-planned combination, show a much greater operating economy in the kitchen than does the use of either one alone. This we have learned from an experience that has been both experimental and practical. Today the cost of operating both our gas and electric ranges for a month averages just about one-half of what the cost used to be for gas ranges alone a little more than a year ago when we had no electric ranges.
>
> However, the subject has many phases, so that one cannot dogmatically say that electricity is cheaper than gas, or *vice versa*. And of necessity, the entire question will hinge more or less upon the particular engineering equipment. These two generalities, though, can be definitely made:
>
> 1. If an institution buys its electric power, then gas will be cheaper.
> 2. If it makes its own electricity, the right combination of gas and electricity will show the maximum economy.
>
> A brief consideration of these two points will prove them. Taking the first, purchased electricity costs from two to four times (putting it conservatively) more than what it will cost the average hotel to make it. For instance, we figure that it costs us a cent and a quarter per k. w. to generate our electricity, and it has been as low as a cent per k. w. Were we to buy

Plate 16. Automatic toasters, electric egg timers, and other automatic machines speed up service and reduce costs.

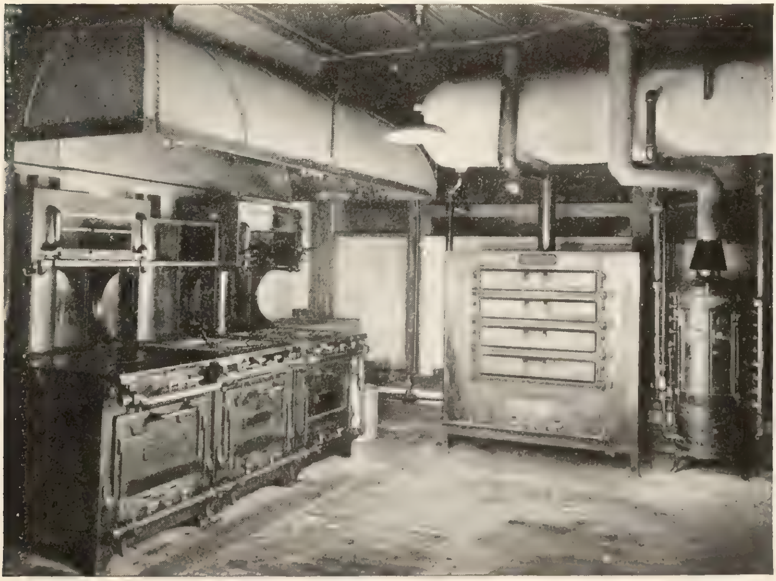


Plate 17. Corner of a small kitchen showing one hotel and two short-order gas ranges, a gas oven, and an automatic gas hot-water heater. These heaters come in sizes large enough to take care of heavy duty requirements.

Plate 18. Electric ranges in the "Home Kitchen" at the Pennsylvania Hotel in New York City.

Plate 19. A modern electric oven.

it, the lowest contract figure we could secure today would probably be somewhere between two and one-half cents to five cents per k. w., depending upon the quantity used. On this basis, electric ranges would prove too expensive and gas ranges would be far more economical.

In considering the second generality, the matter of exhaust steam must be taken into account. If it is profitable to carry a back pressure on the engines, it is good judgment to use exhaust steam in the kitchen. However, if there is use for the exhaust steam elsewhere in the house, and the hotel makes its own electricity, then by all means use electric ranges to their fullest extent. Paradoxical as it may seem, there is a limit to the economy that can be secured in the use of an institution's own electricity. Seldom does a house find use for all the electricity it produces.

Just to show one instance of how we try to strike the happy medium in our use of exhaust steam and electricity in the kitchen, during the winter months in particular, the chef has instructions to use the electric ranges almost entirely for his work in the early morning hours and as little exhaust steam as possible. This is for the reason that the exhaust steam can be used more profitably elsewhere in the building.

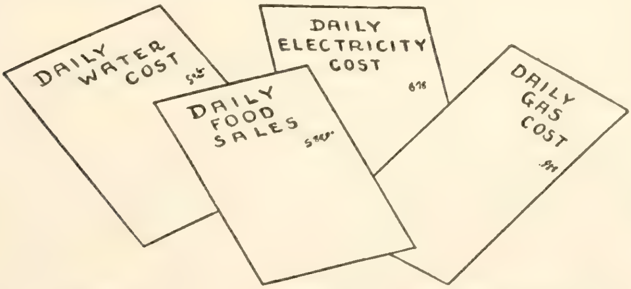


Fig. 45. Worth while savings can be effected by a regular check on the consumption of gas, electricity, and water, as compared with food sales. The saving was $1.10 a day in one establishment.

HOW COSTS COMPARE. Our installation of electric ranges has been gradual and only when and because the results have justified their use. For two and a half months, from October 1st to December 16th, our cost figures showed:

Cost of gas ranges for 77 days before electric ranges were installed	$1,736.56
Cost of gas and electric ranges combined for 77 days	1,580.74
Saving in 77 days	$155.82
Average saving per day	2.02

MONTHLY COMPARATIVE COSTS OF GAS RANGES AND ELECTRIC AND GAS RANGES COMBINED

Cost of gas ranges for 23 days in November		$789.97
Cost of gas ranges for 23 days in November (following year)	$502.32	
Cost of electric ranges for 23 days in November	115.00	
Total cost for gas and electric ranges in November		617.32
Saving in 23 days		$172.65
Average per day		7.50
Cost of 2 electric ranges	$1,224	

According to meter readings the electric ranges, charging $.01 per k. w., would pay for themselves in six months.

Cost of gas ranges for December		$1,084.12
Cost of gas ranges for December (following year)	$594.34	
Cost of electric ranges for December	161.40	
Total cost of gas and electric ranges for December		$755.74
Saving for the month		$328.38
Cost of gas ranges for January		$1,020.26
Cost of gas ranges for January (following year)	$641.68	
Cost of electric ranges for January	162.10	
Total cost of gas and electric ranges for January		803.78
Saving for the month		$216.48

In every instance there appears a saving when the electric and gas ranges have been used in combination. These figures also show that the electric ranges would pay for themselves in six months, charging one cent per k. w., our cost at that time. However, while this is a fairly representative estimate of how long it will take an electric range to pay for itself, yet in actual practice such estimates will vary with the proportion of exhaust steam used in the kitchen.

In a number of minor features electric ranges are much more satisfactory and economical than gas ranges. To date we have made no repairs whatever to our electric ranges, and this despite the fact that the manufacturers of the ranges warned us we would burn out the resistant coils if we persisted in running them at 220 volts instead of at 210, the voltage they are wired for. But no replacement of resistant coils has yet been made.

PREVENTING WASTEFULNESS. Carelessness on the part of employees will always be the cause of waste in the use of either electricity or gas in the kitchen. This is not such a serious factor with the electric ranges when the electricity is supplied by the hotel itself, because there is generally an over-supply at all times. Every foot of gas, however, costs money and for this reason waste through carelessness of employees when using gas must be continuously checked up.

In order to fix the responsibility for any increase in our gas consumption in the different departments using it, we have recently installed meters that will measure the exact amount used by each. This will avoid all disputes over which department is wasting, or using more, gas. Before, when all the departments were supplied through the main meter, we could not fix the responsibility, as each department head denied, naturally, that his particular department was the cause of any increase. Now we find that they not only take more pains to stop "leaks," but also show keen interest in lowering their costs. The installation of these secondary meters has really eliminated a "touchy" problem and is saving us money.

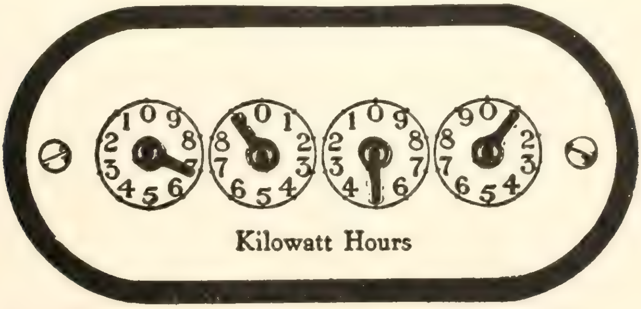


Fig. 46. The reading of this electric meter is 6951 kilowatt hours. When a hand on any of the dials is between two and three, or the like, the lesser number is always read. The dials indicate in one revolution, beginning with the right hand dial, 10,100, 1000, and 10,000 kilowatt hours respectively. The reading of this meter a month ago was 5640. Hence 1311 kilowatt hours were used.

PASTRY OVEN CHANGED TO GAS. We consider our move in changing the pastry oven from coal to gas as an extremely satisfactory and economical one. It is a great deal cleaner, and the work has been reduced so much that we would not consider going back to coal even though it proved more economical. When we burned coal there used to be an awful mess (to put it plainly) in the early morning hours when the pastry cooks made the fires. Everything had to be covered with special cloth covers on account of the dust and, as no pastry cook was ever cut out to be an expert fire-builder, the whole kitchen generally would be filled with coal gas until it was almost stifling. It took some time for this bad air to be driven out, during which everyone worked in an unwholesome atmosphere.

Just how much we are saving in dollars and cents by the change we do not know, but we feel sure that we are economizing, especially in these times of high-priced coal. In anticipation of an emergency one of the ovens was not changed, so if necessary we can burn coal in it should the gas supply fail us.

In any consideration of the relative merits of gas and electricity in the kitchen it is first absolutely necessary to know the engineering conditions under which a particular hotel is operating. Every engine room is as individual as every person one passes on the street. While specific recommendations cannot always be adopted successfully, generalities can, as a rule, be worked into something usable either in an elaborated form for the big hotel or else in a modified way for the small house. To my mind there is no reason whatever why every large institution cannot make its own electricity at a cost much lower than it can be purchased. If this does not prove practical throughout the entire year, then certainly it will during the winter months. And in this latter event the course to follow is to buy electricity in the summer months and make it in the winter months.

To conclude, our experience is that electricity is by far the cleaner fuel and, when used in a carefully planned combination with gas (not overlooking exhaust steam), will show satisfactory economies in both money and service in the kitchen.

CHAPTER XII

PURCHASING GENERAL EQUIPMENT

Several weeks ago, while making a schedule for kitchen equipment in an 800-room hotel, I realized how difficult it must be for the layman to appreciate just how much machinery is being used.

In planning the chapters for this book I found many odds and ends that do not fit into definite classifications. Many of them are very important, not only in saving time, money, and labor, but in actual increases of business.

Spray Gun. Some of the equipment does not come under the direction of the kitchen managers, but a knowledge of the machines is always worth while. A spray gun or water softener may seem far removed from kitchen management. But it isn't. The chef or steward who knows the value of good light and sanitation, insists that kitchens be painted frequently. Quite often the excuse is that it can't be done because the kitchen is always busy. With a spray gun and lacquer the job can be done in a few hours—and the job is dry in half an hour. Some spray guns can also be used for spraying insecticides.

Water Softener. Water softeners pay for themselves in reduced soap needed for cleaning, the saving of time in cooking, and the improved flavor of foods. Hard water causes an accumulation of scale on teakettles, in urns, on pipes and in dish-washing equipment. This accumulation causes a fuel loss of as much as 9 per cent. Tests show that in water of fifteen grains of hardness, ten times as much soap as for softened water is needed to cause lather. Soft water is an active solvent for grease. Therefore very little soap is needed for the washing of pots, pans, dishes, scouring, etc.

In the preparation of coffee and tea, soft water actually reduces the amount needed by from 20 to 30 per cent. In the preparation of vegetables soft water not only improves the flavor, but also reduces cooking time.

Incinerator. My experience proves that an incinerator is economical in all institutions regardless of size. The only time I do not recommend it is for a restaurant being operated on a short lease. In some institutions garbage, such as tin cans that cannot be burned, are compressed. This and assorted bottles are about all that need to be hauled away.

Incinerators
- Dispose of all waste, garbage, rubbish, etc., when it comes and as it comes, without odors or nuisance.
- Eliminate nuisance of having garbage cans waiting in alleyways and driveways for garbage collectors.
- Centralize waste in one spot—a good check on all departments.
- Make possible easy recovery of table silver and other usable things thrown away.
- Save money over other methods of disposal.

The man who handles this department can sort out bottles to be returned or sold; drain the garbage; sell old grease, rags, bones, oyster shells, and meat scraps. Also he can handle the paper baler that soon pays for itself in hotels, clubs, hospitals, larger restaurants, and most institutions.

Fire Extinguishers. We are never free from kitchen fires. So we must be ready with equipment that will confine and quench the flames. Do not experiment with cheap extinguishers of an unknown name. Buy proved fire protection and then see that the containers are serviced at stated intervals. Keep these extinguishers close to the point where they may be needed. As an example, each end of the ranges, each end of the storeroom, at the receiving door, in the paper-baler room, in the freight elevator, in the garbage room, in the beverage room, in the bakery, and in each locker room and wherever open fires are used.

Ice-cream Machines. Any kitchen handling the service of three hundred or more meals a day can usually save money by making rather than buying ice cream. Exceptions are in institutions where very little is served. The freezing can be done by electricity while the baker or pastry man is working at another job. Many chefs and bakers have become famous because of their ice cream and other frozen dainties.

Motorized freezers are usually twenty or forty quarts in capacity. At least one is built in combination with an ice-crusher.

Hand models from 2 to twenty-five quarts in capacity are practical for small kitchens.

Ice-breakers. My experience with ice-breakers shows that a machine of some kind is practical where two hundred or more meals are served daily, or in other kitchens where a great deal of ice is needed. In purchasing such equipment it is important to get heavy construction and *good steel* in well-made combs. There are sizes from those that can be used on a counter to those that operate by electricity and have a capacity of three tons an hour.

Scales. The modern kitchen and storeroom would be lost without a variety of scales. The following types are most generally used:

> Platform scales—receiving room, storeroom, butcher shop.
> Hanging scales—storeroom, receiving room, kitchen, pantry, bakery, butcher shop.
> Counter scales—storeroom, kitchen, bakery, butcher shop, pantry.

Merchandise must be weighed in—portions must be weighed, food received in bulk is weighed and put up in small packages, and bakers weigh out the dough. Scales are the guards against loss in the kitchen, and it doesn't pay to buy cheap ones that do not tell the truth.

Mixers, Choppers, Grinders. Experienced kitchen executives do not need to be told that this equipment is very largely responsible for the speed with which food can be prepared. Now there are sizes for even the smallest restaurants. Attachments make it possible to grind coffee, whip cream, grind meat, etc. Study your requirements and then get the right size. But be sure that you get a machine that has a reputation for years of heavy duty service in institutions. Ask the man who owns one.

Fruit-juice Extractors. The increased use of orange, lemon, and lime juice has made it profitable to own extractors. Tests show that they extract more juice and that time is saved and waste prevented. No pantry is complete without at least one extractor.

Can-opener. Those of us who learned to open cans with a cleaver have a lot to learn about modern methods. At a recent hotel exposition I joined a crowd about a booth occupied by the manufacturer of a new can-opener. The little inexpensive machine opened a can in a flash with but the twist of the wrist. No sharp edges, no overlapping cover or bent sides. With the increased use of canned goods in institutions, it does not pay to open cans in the old fashioned way.

Butcher Blocks. Hard maple is the best for this purpose. Be sure that the legs are sturdy and that the block is guaranteed not to split, check, or crack, and keep the block clean and sweet.

Sinks. Every department needs a sink. They should be built at a comfortable height and with smooth surfaces. There should be no projecting bolts, rivets, or screw heads. Construction should be heavy enough to stand hard usage. They should be of rustless, noncorroding metal that cleans easily. The initial cost is higher, but in the long run it is cheaper. Be sure that drain boards have splash backs and that the sinks are large enough. For workers who are unusually short it is advisable to use a platform on which they can work over the sinks.

Butter-cutters. Cutting butter by hand is unsanitary and wasteful. Cutters are inexpensive and can be set to cut from thirty-six to sixty pieces from the pound print.

Dispensers. These can be had for cream, tea, malted milk, cocoa, water, orange juice, grape juice, buttermilk, and other beverages. They are a part of modern pantries from which such products are served. They prevent waste and encourage sanitation. In some cases they are a part of a pantry unit of a soda fountain. At times milk and cream are served from a pump. In any case sanitation is very important. Construction must be of the highest-grade, noncorrosive metal with a surface that can be cleaned easily. Refrigerated units are now the most practical and economical.

Food-warmers. A new electrically heated food-warmer is destined to supplant the steam table and other methods of preserving prepared food. By this new method cooked foods do not lose their moisture, because the warmer is air tight. Foods prepared in the morning and put into this warmer are still fresh and warm in the afternoon. With this equipment hot rolls can be served all day. It is certain to revolutionize food service.

Egg-cookers. People eat 11 per cent more eggs now than in 1917. In addition, many more boiled eggs are used for salads, sandwiches, and creamed dishes. Egg-cookers are, therefore, very popular. There are three types: with a clock, with a motor, and by electric contact cooking by steam. All are practical, efficient, and good values for the money. Generally the first two methods are better for kitchen preparations, while the latter is better for counter work, where its newness appeals to patrons.

Slicers. Sandwich days have made it increasingly necessary for even the smaller restaurants to have slicing machines. Slicers make it possible to know exactly how many slices of bread, ham, cheese, etc., one can get from a pound, so that sales prices can be established on a good business basis. In addition they save a great deal of time, are more sanitary, and make for standardization. If foods increase in price, it is easier to cut more slices from a pound than it is to raise prices.

Slicers are also used for potatoes, cabbage, beets, pumpkins, cucumbers, apples, rhubarb, etc. Such a machine gets the most out of fruits and vegetables—and in a sanitary, speedy manner.

Rotisserie. Generally such equipment is used in the front windows, or at least where it can be seen by the guests. This form of cooking seems to be growing in popularity. It is one of the many tendencies that must be watched by the progressive caterers.

Bacon-fryer. This automatic electric equipment was first shown this year. With it six slices of bacon can be fried at one time, and the current is automatically turned off when the bacon is done. It is certain to increase the consumption of bacon.

Waffle Irons, Toasters. Specialty dishes, salads, and sandwiches have made special machines a necessary part of the modern kitchen. With automatic features they guarantee well-prepared food without waste of time, labor, or materials.

Special Machines. Such machines as the following cannot be used in all kitchens, but in many they are indispensable: bread-crumber, apple cutter and corer, cheese-grater, shoe-string potato-cutter, French-fry cutter, peach and apple parer, vegetable-cutter, potato-masher, duck press, knife-cleaner, cherry-stoner, filters, egg-poacher, hot-cake mixer, sink pumps, and pencil-sharpeners. Each one is designed to serve a useful purpose. Your job is to decide if any of them can cut costs or increase the efficiency of your kitchen.

CHAPTER XIII

MACHINES THAT CUT COSTS

> All food was dumped into a huge bin in the basement. When the time came to start dinner, I turned on a switch that started a dozen motors. The food was sorted into several smaller bins, from which it was deposited into kettles, pots, pans, and ovens. In a few minutes other machines picked out the cooked food, put it on plates and set it before my patrons. When they had eaten, the tables were cleared, dishes washed, and food stored by other electrical hands. I had the hardest job in the place—ringing the cash register.

"Wasn't that some dream?" exclaimed the proprietor of a Minnesota restaurant with whom I was spending the evening.

Unfortunately, we cannot run a kitchen on dreams, but we can do a great deal more to cut food and payroll costs by making use of electrical hands that do not belong to a union, never demand increases in salary, and have no tongues to agitate. In not over 20 per cent of the many kitchens I have visited has an analysis been made of how such modern machines can cut costs and build business.

In an Ohio kitchen they profited by making such a survey. The manager, steward, chef, and a kitchen engineer from a large supply house made out a schedule of what food was being prepared and how it was being done. A careful study showed that they were using the old fashioned method for extracting orange juice; bread was being sliced by hand; cans were opened with a cleaver; apples were pared by hand; potatoes and vegetables were cleaned by hand; toast was made on the range; knives were cleaned by hand; no steam kettles were being used; cream was poured from a pitcher; garbage removal cost over a dollar a day; dressings, fillings, etc., were mixed by hand, and even ham for sandwiches was cut by hand.

With a rearrangement of duties and by the expenditure of about $2,400 for labor-saving equipment, it was possible to use one employee less in the kitchen.

The direct result was a saving of $717 a year, a much higher standard of sanitation and more speedy service. Also there was greater uniformity in the quality of the food and service and in the size of portions served to the patrons. The figures are as follows:

Wages for one pantry man		$1,300
Less 7 per cent interest on an investment of $2,400	$168	
Annual depreciation (10 per cent)	240	
Cost of operation	175	
Annual cost of new machinery		583
Additional profit per year		717

In another kitchen with which I am familiar, a saving of $4,800 was made by putting in a dish-and glass-washing machine, a pressure cooker, automatic refrigerators, a vegetable-peeler, food-mixer, new urns, a meat-chopper, and several smaller machines. Two employees less were needed in the kitchen; the vegetable-peeler reduced the potato bill by 20 per cent; glass and china breakage was reduced about 10 per cent; and food spoilage was reduced to a minimum. In this case the savings paid for all the new machines in less than a year. It rarely takes over eighteen months to pay for such equipment out of savings due to reduced cost of operation.

The following list is a graphic example of how necessary machines are to the modern kitchen:

FORTY-EIGHT MACHINES THAT SAVE LABOR

*Dish-washer
*Food-mixer
*Meat-slicer
*Butter-cutter
Spice mill
*Silver-washer
*Can-opener
Water-softener
*Egg-timer
*Potato-peeler
*Vegetable-slicer
*Fruit-corer
*Time clock
*Fruit-juice extractor
*French-fry cutter
*Potato-cutter
*Potato-masher
*Preserve-cookers
*Scales
Dough-dividers
*Electric ice-cream freezer
*Mop-wringer
*Sink pumps
*Ice-cream machine
*Automatic refrigerator
*Bread-slicer
*Food-chopper
*Meat-grinder
*Cream-dispenser
*Coffee mill
*Ice-cuber
*Soap-feeder
Incinerator
*Automatic toaster
*Potato-parer
*Apple-peeler
*Knife-cleaner
*Knife-sharpener
*Cherry-stoner
Bread-crusher
Cheese-grater
*Urns
*Steam kettles
*Trucks
Cake-filler
*Ice-breaker
*Mopping trucks
Paper-baler
*Steam tables

*Used in a kitchen from which 200 meals are served each day. The entire list is from a kitchen for the service of 500 meals a day.

ELECTRICAL EQUIPMENT USED TO PREPARE 500 MEALS PER DAY

Following is a list of the electrically operated equipment in a kitchen preparing approximately 500 meals a day:

1 dishwasher
1 silver-washer
1 ventilating fan
1 refrigerator
1 food-chopper
1 potato-peeler
1 ice-breaker
1 ice-cream freezer
1 food-mixer
1 knife-polisher and cleaner
1 coffee mill
1 malted-milk mixer
2 ovens
2 ranges
2 toasters
2 egg-boilers
4 waffle irons
2 grills
3 hot plates
2 orange-juice extractors
4 percolators
1 vegetable-slicer

It is only within the past ten years that all types of machines have come into general use. Much of this is due to the shortage of dependable menial employees.

This does not mean that one should buy all sorts of labor-saving machines. I do not advocate the purchase of anything unless there is a distinct need for it. That is why I recommend an impartial study and survey. You should ask yourself such questions as the following:

> Can the payroll be reduced by the use of more machines and a better apportioning of work?
>
> Can the quality of food be improved by using modern sanitary machines?
>
> Can work be made more pleasant so that labor turnover will not be so great?

As a rule, modern machines are valuable aids in solving all of these questions.

Generally, it pays to use a large variety of labor-saving machines in a kitchen from which 200 or more meals are served daily. The list in this chapter is an example of what is being used in a small restaurant located in a city of 25,000.

When buying kitchen machinery, one must keep in mind the conditions under which it is to be used. These machines must give uninterrupted service, quietly and at a reasonable cost of operation. They must also be trouble-proof, equipped with safety devices, be easy to clean, and if possible, be constructed so that they can be used for several purposes.

A present tendency is to buy equipment for large kitchens in two units. This is true especially of dish-washing machines. The extra unit provides break-down service and also makes it possible to use one machine only when business is slack.

By all means, buy equipment to take care of an overload. It is better to pay a little additional for a larger size so that an overload will not cause shorter life. If in doubt about sizes or the quality of a machine, ask the man who owns one.

Select machines that can be cleaned easily. I have used machines that required more time for cleaning than the time they saved in food preparation. Obviously this is false economy, but not at all unique in many kitchens.

I am asked often if it pays to buy reconditioned equipment. My answer is that it is a matter of circumstances. Such equipment purchased from a reliable company often keeps the investment down to a lower figure. As a rule, however, it is better to buy new equipment and pay for it on the partial-payment plan. This is true especially when one is building for permanency. The best and most expensive machines are usually cheapest in the long run. We usually get about what we pay for.

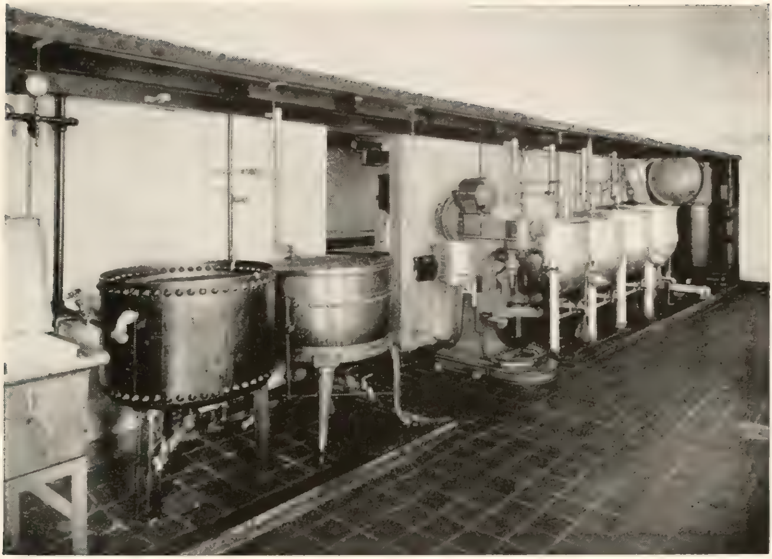


Plate 20. Separate drains in the sections for the kettles and cookers make it easy to keep this kitchen sanitary. Note also the fact that all equipment is off the floor. The mixer is one of the latest heavy duty types.

Plate 21. Silver-cleaning machines are an economical part of every dishwashing department.

WHAT OTHERS SAY

"We cut our toilet and washroom costs by installing powdered-soap containers and single-sheet toilet-paper dispensers. Paper-towel costs are high, but this cannot be changed, because our state laws prohibit the use of roller towels."

CHARLES MORREL.

"Scales, both hanging and platform, are essential to the kitchen and storeroom. In no other way can we be certain to receive what we pay for and that customers are not receiving portions that are too large."

G. B. NEARING.

"I cannot understand why more managers do not realize the protective value of using more fire extinguishers. We keep one at each end of the ranges, another near the bake ovens, and a third in the storeroom, and they are all high-class extinguishers that are guaranteed to work when they are needed most."

L. C. STEEN.

" 'Buy cautiously.' If you visit a store devoted to the equipment of restaurants, you will be told that you must have this or that, but wait and see for yourself. But only essentials (and these of the best) and add other equipment when you find it needed, bearing in mind that it is better to have a balance in the bank than a bill on some one's books. Don't overbuy in the beginning. The stores will always be there."

AGNES GLEASON.

CHAPTER XIV

STANDARDS FOR COOKING EQUIPMENT

Good food cannot be prepared on cheap equipment. Food costs cannot be kept at a minimum without the most efficient types of ranges, urns, and cookers. In spite of this, present-day purchasing is done by guesswork. Very few buyers demand technical data when they purchase cooking equipment. When buyers realize the value of demanding such information, we will find that manufacturers will make better equipment and salesmen will be able to give data which is almost unobtainable at present.

Buying a range for a new establishment is the most difficult. It is first necessary to estimate the amount and kind of cooking and the length of time in which the preparation must be completed. As an example, there are many places in which there is a turnover of four or five people per chair within two hours' time at noon. These establishments may or may not do much business the balance of the day.

If the kitchen is to be operated efficiently, there must be cooking capacity enough to take care of the peak load. It is necessary also to determine the kind of cooking because different types and sizes of ranges are needed for short orders and *à la carte,* than for *table d'hôte.* If a great deal of broiling or roasting is to be done, there must be special equipment for this purpose. Generally in a commercial institution the work is pretty well distributed between frying, roasting, boiling, and broiling. An efficient chef plans his meals to equalize the work under each group. For several years the tendency has been toward much specialty food preparation. This has taken the load off the heavy duty ranges and put it on to new cooking units, such as electric automatic toasters, waffle-bakers, bacon-fryers, grills, and egg-boilers. This has been a profitable tendency.

So much of this specialized cooking is done in a New York restaurant that a one-fire, one-oven gas range takes care of all heavy duty preparation. All other foods are prepared on two four-slice toasters, two egg-boilers, three waffle irons, and a griddle.

The best example I have seen of efficient buying was done by a hotel manager who did his buying at the Hotel Exposition held in connection with the Hotel Association meeting. Following is a copy of the memorandum which showed the information on which new purchases were to be based.

Cooking Data

Approximate number served per day at peak load
6 P.M. to 8 P.M.—350. Full day—1,000 meals.
Kind of food to be served—*a la carte* and 5 ready dishes.
Service in main dining room, room service, and private dining rooms.
Bake own bread, rolls, pie, and pastry.
Fuel cost—gas, $1 a thousand.
Electricity—3 cents.

His purchase order included:

Six gas ranges, each with a top surface of 34 x 40 inches and oven space of 26 x 26 x 16 inches.

Two salamander broilers of six burners each.

Two six-slice electric toasters, one gas griddle, three electric waffle irons, two steam egg boilers and poachers (two units each), one forty-gallon and one twenty-gallon steam kettle, one steam table, three gas urns, one sixty-loaf gas oven.

This manager, and others I have talked with, agree that coal as a cooking fuel is impractical when gas, electricity, or oil is obtainable. When it comes to a question of whether gas or electricity should be used, it becomes necessary to consider many facts. They are:

Cost of Fuel.—How much food can be cooked at a certain price. Have your local power company give you a price on the amount you need for all cooking purposes. Greater consumption reduces the rate per unit.

Cost of Equipment.—This includes first cost, depreciation, repairs and parts, installation, and upkeep.

Shrinkage.—the most authentic figures obtainable show that roasts shrink in preparation as follows:

Coal preparation—33 per cent.
Gas preparation—25 per cent.
Electric preparation—24 per cent.

Personally I believe that roasts prepared in an air-tight oven heated by coal will not shrink any more than in a gas oven. Unfortunately, very few coal-fired ovens are air tight.

Efficient salesmen, representing reliable manufacturers and supply houses, should be able to tell you how much it would cost to do all your cooking with their equipment. They know the capacity of their equipment, and you should know the local rate for gas and electricity. By working together you can buy scientifically.

When you have decided on the fuel to be used and the capacity needed, you still have another very important job—that of deciding which brand of stove to buy.

How Many Brands. I have been told that there are 127 different brands on the market and that only 14 of them are good values. Some use too much fuel, others are built so lightly that they soon break down under heavy duty. Some manufacturers are able to cut prices because their stoves are a little smaller or because quality has been slighted where it doesn't show. You simply cannot tell a good range by looking at its polish.

To be good a range should be made of rust-resisting metal. The top should be smooth and free from obstructions. It should be heavy enough to prevent warping. The fire box should be protected with heavy linings that can be replaced easily. Oven doors should be heavy and strong enough to bear at least 200 pounds when lowered. Oven construction must be such that it cannot break or crack from expansion.

If no plate-warmers are used in the kitchen, it is possible to use the shelf over the range. These are better without doors of any kind.

Necessary Cooking Space. Experts do not agree on the amount of cooking space needed under normal conditions. A composite figure shows it to be about four feet for the preparation of food for 75 people with four feet more for each additional 100 after the first. On this basis, three four-foot units are needed under ordinary circumstances to serve 300 people daily.

The minimum gauge used in coal ranges should be as follows:

Body	14 gauge
Oven top and sides	12 "
Oven bottom	10 "
Interior flues	14 "

Ranges intended for heavy duty should have:

Body	12 gauge
Oven top and sides	10 "
Oven bottom	8 "
Interior flues	12 "

The purchaser should insist on a specification stating the gauges in the range offered, because, while these numbers mean little to the average man, the actual difference in weight and thickness is as follows:

8 gauge is 23 per cent thicker and heavier than 10
10 “ “ 29 “ “ “ “ “ “ 12
12 “ “ 40 “ “ “ “ “ “ 14
14 “ “ 23 “ “ “ “ “ “ 16

All burners should be easily removable, without tools, for cleaning, and should be of heavy cast iron. Gas cocks should have heavy bodies and a simple, positive adjustment of the gas supply.

In buying electric ranges you must look for the same high standards of construction plus heating units that will stand up under heavy duty.

One of the leading manufacturers of oil ranges writes:

> It has been found necessary to construct an oil-burning range with an exceptionally large fire box and flue to take care of the tremendous amount of heat. . . . It is necessary to overhaul them about every eighteen months (such as rebuilding fire box, supplying new ring, lid, or moon plate over the fire).
>
> We have installations where they are heating a 600-gallon hot-water tank by placing a bayonet-type coil in the fire box. They are able to operate a steam cooker by installing the pressure boiler similar to those used in bake shops.
>
> Oil generates nearly 2,000 degrees of heat in the fire box.

From this it is obvious that a special range must be used for oil-burning. Top plates over the fire must be at least two inches thick.

Ranges should be set on concrete six inches thick. The back wall should be at least eight inches thick and of brick or concrete.

Size of Flue. A hood is necessary for fire protection and to carry off smoke and cooking odors. Flues should be carefully insulated and the chimney large enough to carry off the smoke. The following sizes are recommended by one of the leading range manufacturers:

For 2 fires	12 x 12
For 3 "	12 x 16
For 4 "	16 x 16

I do not advise the use of water backs on ranges to supply hot water in other than small kitchens. It is more economical to have a separate heater. It is obvious that a heavy flow of cold water is certain to reduce the oven temperature to a point where it jeopardizes good cooking and baking.

While investigating this subject, I found numerous instances where it has actually been more economical to throw out all the old ranges and buy new ones, than to pay the excessive fuel costs on the old ones. This is comparable to the old carbon light bulbs and the new mazda type. The latter is so economical on electricity that it soon pays for itself. So with many of the modern gas and electric ranges.

Ovens. Eighty per cent of the worth-while hotels and 60 per cent of the leading restaurants bake their own bread. Almost all institutions do so.

When it comes to the baking of cakes, pies, rolls, muffins, etc., most hotels, restaurants, clubs, and institutions do some or all baking.

There are two kinds of ovens—portable and built-in. Many institutions, hotels, clubs, and hospitals have the built-in type. Most restaurants use a portable oven. There is a decided tendency toward the use of portable ovens in all institutions. They are more flexible and require less space.

Baking is done by gas, electricity, and oil. The selection of fuel is dependent on the same factors that influence its choice for ranges. However, electricity is rapidly winning more converts, even where gas rates are more attractive. One of the leading manufacturers states that electricity for 2½ cents a kilowatt hour compares favorably with the cost of artificial gas at $1 per thousand cubic feet or hard coal at $15 per ton.

Ovens are usually purchased in sections—at times made up of sections for meat roasting. A careful study of catalogues issued by the leading manufacturers will reveal some very interesting and practical new developments in baking and roasting foods.

When purchasing ovens it is necessary to look for the same high standard of construction as in ranges. Automatic features are desirable, and so are those that make it possible to retain the heat. It is especially necessary for cooks and bakers to study directions carefully. I have found numerous instances where gas and electricity were being used in excess of requirements.

Steam Cooking. The past ten years has shown a remarkable increase in cooking by steam. The most popular equipment is stock kettles, pressure cookers, vegetable-steamers, steam kettles and steam urns. Steam tables and bain maries are used to keep food warm.

The usual application of steam in kitchens follows this outline:

High-pressure steam up to forty pounds per square-inch gauge is required for vegetable-steamers, urns, pots, and kettles, steam serving tables, and warming closets.

Low-pressure steam, not over fifteen pounds per square inch, for hot-water supply, dish-washers (steam injection type), water sterilization, and laundry.

In many states a licensed engineer must be employed if high-pressure steam is used. Obviously this usually makes it too expensive for small institutions to use steam cooking for all its possible applications.

Urns for hot water or coffee are heated by direct burners or steam coils. The direct burners may be gas, electricity, or oil. In any case it does not pay to economize on quality. Cheap urns are difficult to clean, the faucets leak, the outer case dents easily, or the nickel is so poorly put on that it soon wears off.

Good coffee more than any other food or beverage helps to build business. Therefore the saving of a few dollars on the purchase of an urn is a short-sighted policy.

When buying steam tables, whether they are heated by gas, electricity, or steam, be sure they are made of rustless, noncorrosive metal and of a weight heavy enough to stand constant usage.

During the past few years, over a thousand people have written asking me to recommend a brand of range, oven, other cooking equipment, or kitchen machines. I do not feel competent to give specific answers to these questions. Their problems are unknown to me. I do not know whether or not all companies have local service stations. I usually reply by sending the names of the leading manufacturers of the equipment in question.

I urge that the manufacturers' catalogues be studied and that the manufacturers be requested to furnish the names of other users in the same locality. "Ask the man who owns one" is a very good policy, especially when his problems are like your own.

It pays to attend expositions where competitive products can be compared and studied in action. As a rule, manufacturers send their star men to these exhibits. This gives prospective purchasers an opportunity to get data which the ordinary salesman cannot give.

CHAPTER XV

SILVER AND DISH-WASHING PROBLEMS

There is more inefficiency, waste, noise, breakage, and labor turnover in the dish-washing department than in any other part of an institution. It is also one of the most expensive departments to operate. Why, then, should such disgraceful conditions continue to exist? Why is little or no attempt made to find effective remedies?

Ignorance is the principal reason. Very few managers, stewards, or engineers know much about the problem. Unfortunately, dish and silver cleaning is considered one of the necessary evils. Architects who design new houses seldom plan a department for economical and efficient operation. When the inside factors pay so little attention to this important job, it is surprising that architects, engineers, supply houses, and manufacturers take so much interest.

Dish-washing is necessary for two reasons—to clean and to sterilize. Hand-washing cleans but does not sterilize. For this reason and because it is the most expensive method, it is used only in kitchens operated by those who have failed to keep up with modern tendencies or where power is not obtainable.

Today washers are made in sizes for the small family and large enough to wash over 20,000 dishes an hour. Their cost ranges from less than a hundred dollars to many thousands. Regardless of whether 50 or 5,000 meals are served a day, it pays to wash dishes with a machine.

Following is a typical comparison between hand and machine washing in a kitchen serving 400 meals a day. Proportionate savings are possible in other kitchens.

By hand		*With machine*	
2 persons, at $2.50 per day	$5	1 person at $2.50 per day	$2.50
3 meals a day for 2 persons	2	3 meals a day for 1 person	1.00
Total labor cost without machine, per day	$7	Total labor cost with machine per day	$3.50

Daily saving on labor, $3.50. Weekly saving (7 days), $24.50. Yearly saving (52 weeks), $1,274 on labor alone.

And this saving does not take into account the important savings in china, glassware and towels.

On this basis a machine can be paid for out of savings in less than a year. My personal experience is that it seldom takes over eighteen months.

The second reason for washing dishes is to sterilize. An investigation made by Lieut.-Col. James S. Cumming of the U. S. Army Medical Corps, proves that the number of bacteria on hand-washed dishes is a serious menace to health. A study of 137 state hospitals, prisons, etc., shows that where machine-washed dishes were used, the influenza-pneumonia mortality was 55 per cent less than in those where hand-washed dishes were used.

Dr. Dearstyne of the Charlotte, N. C., Health Department, counted the bacteria found on hand-washed dishes as compared with machine-washed dishes. Even though some of the dish-washing machines used in the test were of an inefficient type, the difference in bacterial count was remarkable. The results are shown on page 127.

Therefore, people who eat food from dishes washed by hand unknowingly devour a myriad of disease germs.

Utensils examined	*Number of bacteria on* *Hand-washed*	*Machine-washed*
Cups	89,000	3,700
Glasses	76,500	1,700
Spoons	20,300	2,000
Knives	7,600	1,800
Forks	5,200	1,600

For this reason, some managers combat unfair competition from holes-in-the-wall, soda fountains, and drug stores, by letting their guests know the true conditions.

Those who claim that breakage is greater in machine-washing should study carefully the conditions in their kitchen. Generally, it should be less. Most breakage comes during the sorting, scraping, and stacking. Machine-washing should reduce breakage and chipping. It almost always reduces labor turnover, but generally increases the use of water and soap. Much of this is due to ignorance and carelessness.

When selecting a dish-washing machine, one must consider the amount and kind of work to be done, the time permitted, the space available, power facilities, and hot-water requirements.

Letters from and interviews with managers, chefs, and engineers show that the following points must be kept in mind when buying dish-washing machines:

One or two units. In many kitchens two small units are used in preference to one large one. It is claimed that this is economical because only one of the two units is needed during quiet hours. If only one large machine was used, it would have to be operated in order to take care of a limited number of dishes. Also it would be impossible to reduce the number of operators. Also, a two-unit system provides break-down service in case one machine fails.

Labor. Some machines require more operators than others.

Power. Compare cost of operation. This is not always a fair test. In the final analysis the only cost to consider is the total cost for washing each dish.

Water Heater and Pressure. There must always be a supply of hot water at a pressure great enough to do the work. Some machines require more than others for the same job.

Racks or Belt Conveyor. Which of the two do you prefer? Each has a group of admirers who swear by it.

Motor. Is it protected from steam and water? Is it large enough and of standard manufacture?

Table Space. At least 60 per cent should be for soiled dishes and 40 per cent for clean ones. It should be placed so that there is no lost motion.

Trays or Glasses. Are these to be washed in the machine? Not all machines are made elastic enough to handle them.

Construction. What gauge is the metal? What kind is it? Is it rustproof and noncorrosive? Is it easy to clean? Do the doors slide easily and has it many movable parts?

General. Is it high enough off the floor so that the surrounding space can be cleaned easily? Does it vibrate much or is it noisy? Is the grease carried off? Is it equipped with strainer pans to catch refuse washed from dishes? Are the openings in these pans smaller than those in the wash pipe or wash arm? If so, food particles washed from the dishes will be caught by the strainer pans and will stop up openings in the wash pipe. Can wash arms or pipe be cleaned easily? Has the machine a soap feeder and can service be had in a hurry? No machine is perfect, which makes service all the more essential.

These are a great many points to be considered, and they should be. It can be done by studying catalogues, talking or writing to owners and salesmen, and attending expositions where machines are on display.

Most of those interviewed agreed that it is better to scrape dishes by hand; the soiled-dish table should slope away from the machine; it should be equipped with a drain at the lowest point; this drain should have a suitable strainer; outlet to garbage can should be raised and have a rubber ring; silver and glasses should not be mixed with china on the soiled-dish table. One manager stated that battleship linoleum on the scrap tables materially reduced breakage.

A successful engineer wrote:

> One point that might be of interest to your readers with reference to increasing efficiency in the dish-washing department and which has been brought to our attention a number of times, is the fact that clean dishes are permitted to pile up on the clean-dish table to such an extent that the operator on the clean-dish end of the machine finds it difficult to locate sufficient space to place the dishes as they come from the machine. This slows up the work, has a tendency to increase the dish breakage, and keeps out of circulation dishes that could probably be used to advantage. It is always better to handle the dishes promptly when they come to the clean-dish table from the machine. A few minutes to drain is an advantage, but very frequently the clean-dish table is used for a storage space and this invariably reduces the efficiency of the men and the machine.

There is a large turnover in help used on dish-washing machines. Where a man can be trained to take care of and operate a machine, it is a distinct loss to have him leave and break in a new man. It has been found advantageous in a number of cases to pick out one of the dish-washers who seems most proficient, pay him a little higher wage than a regular man, put him in charge of the machine, and hold him responsible for its operation. He will see that the engineer (if the engineer is in charge of equipment) makes repairs promptly and oils the moving parts as directed in the instructions. He will also see that the tanks and spray tubes are cleaned and machine kept in good shape.

Silver-cleaning is closely allied to dish-washing. In many cases, silver is run through the dish-washing machines as a daily practice, and passed into the silver-washing department once a week, or as often as it needs a thorough cleaning. Only special machines can give silver a good cleaning.

The silver-cleaning room is usually located close to the dish-washing department. In many cases it is housed in a separate room, so that everything can be locked up. This is the ideal method, because the stock of silver to be cleaned often amounts to thousands of dollars.

No one knows better than the manufacturer how silver should be cleaned in their machines. Be sure that employees in this department understand these rules.

Dish- and silver-washing is strictly an engineering problem of good layout, efficient organization, and a thorough job analysis. The subject is so important that it would pay to have an expert make an analysis, and, after it has been made, follow the recommendations.

Plate 22. This dishwashing department is located in a separate room. Note the ventilating hood directly over the washer.

Plate 23. An excellent example of a well-planned dishwashing department. Note especially the ventilating features.

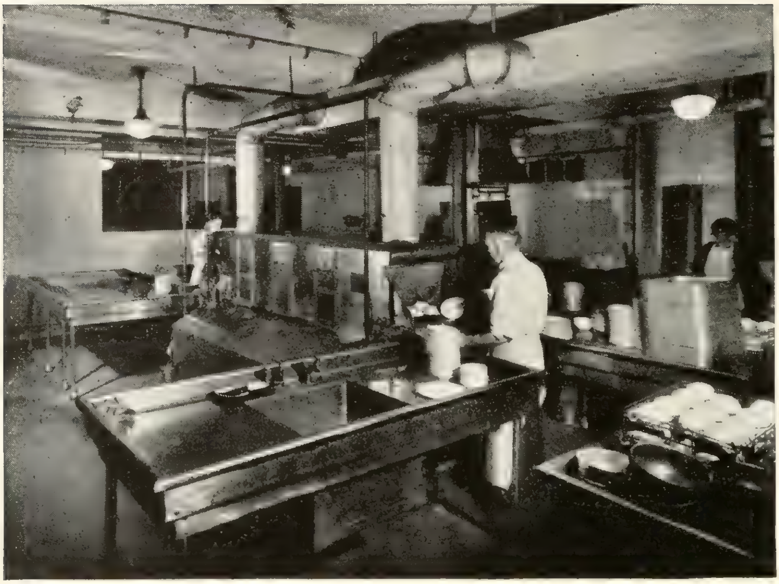


Plate 24. A compact, well-lighted dishwashing department in a large hotel. It is housed in a separate room.

CHAPTER XVI

PURCHASING CUTLERY AND UTENSILS

Cooks cannot produce good food unless they have the proper tools. The butcher and meat carver cannot carve economically unless he has sharp knives. It is just as essential to have the best utensils and the sharpest knives as it is to use first-class food products.

Food can be prepared more quickly, economically, and in a more sanitary manner with some utensils than others. Some brands of cutlery are better than others. In many cases, experience is the only teacher, and most chefs and stewards take enough pride in their tools to see that they are of the best.

Most kitchen utensils are used for cooking or baking. They are subjected to hard usage—much more so than home utensils. Therefore, it does not pay to use that which has not been made for heavy duty. It is important that institutional utensils should be made to last. They must be so sturdy that they will not break nor dent easily. Heat-retaining qualities are essential, and so are those of quick heating. Only seamless ware need be considered. It should have double bottoms and be unaffected by burning. And it must be free from the danger of metal poisoning. Ease of cleaning is, of course, essential. Unfortunately, no one single brand or type of utensil excels in all of these qualities.

Aluminum. Aluminum is perhaps the most popular for general cooking. It is especially so with the many women who are finding their way into quantity kitchens. Much of the popularity is due to its light weight. Cast aluminum is growing in favor, in spite of its higher price.

There are many grades of aluminum. Some are so light in weight that the least pressure causes buckling. Buy only the heavy-weight brands that have stood up under actual institutional usage.

The leading manufacturers of aluminum utensils for institutions state that aluminum utensils are bright and attractive, consequently readily show dirt spots. Ordinarily the use of pure soap and hot water will keep them in perfect condition.

The outside or polished surface can be kept bright by the use of any metal polish that is not gritty and that does not contain alkali.

The inside surface differs from the outside in finish only. The inside is finished by a special process, which makes it less liable to be discolored by food or water containing alkali or iron.

Aluminum, the metal, does not become discolored. Apparent discoloration is due to the fact that a deposit has been made on the inside of the utensil by water or food. Such discoloration is perfectly harmless and will not affect food. It may be removed by boiling in the utensil green fruits, particularly rhubarb, or by the use of any good cleanser, such as those which are well advertised and which the manufacturers state are suitable for use on aluminum utensils.

Use the cleansers also to remove burnt food or burnt grease. If food or grease is badly burned into the surface, pour hot water into the utensil, cover, boil hard for a few minutes, then remove by scraping with a wooden spoon, a wooden clothespin, or a vegetable brush. Or use No. 00 steel wool with lather of good soap to remove burnt food or burnt grease, being careful not to get particles of the steel wool in the fingers.

The metal of the utensil is made thick and too hard to be easily dented. If, however, by accident it should be dented or bent, the metal can be straightened by placing a wooden block on one side of the dent and hammering with a mallet on the other side. There is no danger of cracking or breaking the metal.

Caution. Do not use soda, lye, ashes, ammonia, or any washing powder or soap containing alkalies. All of these injure or discolor pure aluminum. Complaints about aluminum utensils usually can be traced to neglect of this caution.

Please note: (1) Because aluminum stores up a great deal of heat a large amount of heat should be applied to the utensil when first placed over the fire. As soon as heated throughout, the flame should be turned down about one-half; or, if the utensil is on a range, place on cover or move back a little on stove.

(2) Do not think that it is impossible to overheat aluminum. We never have heard of a hole being melted in the utensil while it contained any water or moist food. But when a utensil is absolutely dry, some flames will melt it. The melting point of aluminum is 1,215° F. Water boils at 212°.

Retinned steel ware, and copper ware retinned are quite generally used in older institutions and especially among the older generation of chefs. It is expensive, heavy, and the cost of retinning is quite high. Also, a reserve stock must be kept to care for requirements while some of the utensils are being retinned.

Nickel. Pure nickel ware, nickel alloy, and stainless steel are relatively new to institutional buyers. These utensils have every feature except that of lightness and low price. But next to aluminum, they are most popular in institutional kitchens.

Enamel Ware. Enamel ware is seldom used in quantity kitchens. It has the advantage of weight and price, but it chips and cracks. It does not pay to take chances with utensils that may endanger the good will or the lives of patrons.

Generally, very little judgment is used in purchasing utensils. They are either too large or too small. If they are too small, there is more cleaning, more wear, and greater abuse. If too large ones are used, there is more work for the cooks, greater loss through evaporation, and more time needed for cooking. A careful study should be made of cooking problems before utensils are purchased. Consideration must also be given to the sex of the cooks and the functions of cooking.

The principal utensils used in kitchens are: saucepans of different sizes (from 1 to 32 quarts), stock pots, sauté pans, frying-pans, bain-marie pans, braziers, double boilers, baking-pans, roast pans, muffin pans, griddles, cake pans, pie tins, waterless cookers (these are increasing in popularity), double roasters and ladles, pitchers, pails, and containers of various kinds.

Cutlery. It used to be said that a chef could be judged by the quality of the knives and cleavers he used. Perhaps this is no longer true. Nevertheless, I have observed that the best cooks demand, and get, high-grade tools. And they keep them in good condition. Most of them insist on doing their own sharpening, just as many barbers never trust their razors to another person. Both the artist and artisan, who loves his work, is certain to have some degree of respect for the tools that make it possible to express himself.

The man who neglects his tools is one who does his work carelessly. I have never known this rule to fail.

Knives should have hand-forged blades of the best-tempered steel. Handles may be made of seasoned beech, walnut, or rosewood, and well rivited together, smoothly and neatly. It should fit the hand, and be properly balanced for the individual who must use it.

Special knives should be used for bread, butter, boning, skinning, and slicing. A long blade is best for slicing. It is essential to have spatulas, butcher's steels that are especially hardened and tempered, and stainless-steel knives for grapefruit, oranges, and lemons. Stainless-steel corers, for grapefruit and oranges with seeds, are great time-savers. Tests prove that a girl with a corer can prepare three times as many servings as the girl who works with a knife.

Cleavers. Experienced cooks know how to buy cleavers, and it is always interesting to watch them buy one. It is hand weighed, turned, twirled, and reweighed, with as much care as a doctor takes in buying a delicate instrument. Cleavers should be of well-tempered steel, full tang, and of course must fit the hand.

Meat saws must be made of highly tempered steel, well sharpened. They must be easy to clean and be treated to prevent rust or corrosion.

It is not advisable to purchase cutlery and utensils without consulting those who must work with them. This is an added reason why the chef, or steward, or both, should be on the job in a new institution while all equipment is being put into place. Then it is time enough to hand-pick the tools that are necessary for efficiency and economy in the kitchen.

CHAPTER XVII

THE SELECTION OF TABLEWARE

UNFORTUNATELY, not over a fraction of 1 per cent of the buyers are in a position to make laboratory tests on how to purchase to the best advantage. Therefore, it is of little value to know a great deal about the subject from the scientific standpoint. If this information is desired, it can be had without difficulty. Therefore, the writer will limit the educational information to that which can be used by the great mass of readers. Manufacturers and buyers can argue on into eternity without coming to any definite conclusion as to which is the best china.

Replies to a questionnaire sent to hotel buyers show that the majority prefer American vitrified china. This may or may not be due to the fact that it is more generally known than the German type.

In general, replies to the questionnaire show that it does not pay to buy cheap or fragile china; patterns should not be too ornate; the design should not come too close to the edges; stock patterns are the most economical; decorations or patterns on the china should be put on before the ware is glazed; heavy welded-on handles are stronger than those that are stuck on.

Brands. Most china is sold by brand name. Quite naturally each manufacturer claims the best value for the price. Most of them have no scientific data to back up their claims and the buyer has no way of knowing which is best. What is he to do? When I questioned one of the largest buyers in New York, he said: "We're all buying in the dark. I will not buy unknown china. In fact, the brand we are using has been used in this house for the past six years. I know my breakage is high, but not so high as in some houses that use other brands. If a salesman comes around to sell me other brands, I ask him to prove that his is better than mine. In spite of my willingness to cooperate, I have never found a salesman who could furnish this proof."

On this basis the safest procedure for the average buyer seems to be that of buying brands being used successfully by large operators. Also, he should study food service to find out how to reduce the number of styles and sizes in use.

Cooking-china. This ware must stand a high degree of heat, be vitrified, have a colorful appearance, and be of heavy-weight construction. Cooking-china is being used more each day because baked foods are in fashion. Clear oven glass is also coming into general use for chicken pies, baked pork and beans, deep-dish pies, puddings, etc. Where foods can be displayed in such dishes, larger sales can be made.

Glassware. The breakage of glasses is due not so much to inferior quality as to improper selection of styles and sizes.

Stem glasses do not stand up under heavy usage so well as tumblers and glasses of patented shapes. Heavy tumblers are not suitable for high-class service, but the new patented shapes are used by the finest hotels. It is advisable to buy glasses that cannot be cupped and that have a rolled edge.

There is a decided tendency toward the use of unetched glasses, because of the cost and the difficulty of cleaning the etched section. Many hotels, restaurants, and clubs are now using colored glassware to get the touch of distinction formerly given by using etched ware.

In a recent issue of *Hotel Management* magazine, Vincent R. Bliss, writes as follows:

> Designs may be applied to glasses either in the form of bands and borders or as crests. The best method etches the decoration right into the glass with a powerful acid (hydrofluoric). This is absolutely permanent. Bands and lines may also be ground into the glass, giving a dull white appearance, also permanent. Then, there is an imitation of the ground band called an "enameled band," formed by baked-on enamel. This looks the same as the ground band at first, but is not permanent, as the enamel in time wears off.
>
> Crests and badges, according to the character of the design, may be etched in two ways. *Plate etching* is the more expensive, but produces very beautiful effects, some of which can be obtained by no other means. *Pantagraph etching*, a less expensive process, may also be used, and is the same process employed for most etched bands. It is an excellent method, but cannot produce some of the effects given by plate etching. A still less expensive way to apply crests is by the enameling process, but this, as explained, is not permanent and it is not recommended.

The efficient buyer standardizes on a limited number of sizes, and usually of a type and model that can be secured quickly.

Most buyers claim that lead-blown glassware is superior to the lime-blown. The latter is lighter in weight and appears to have rainbow hues when examined from different angles. Lead-blown glassware is clear and has a musical bell tone when it is tapped with the finger nail.

In many institutions, the breakage of china and glassware amounts to 2 per cent of the gross income for meals. Those who have brought this down to less than 1 per cent follow the principles of a limited number of sizes, correct shapes and styles, and a thorough education of those who handle the ware. In one hotel with which I am acquainted, glass breakage was reduced 41 per cent by eliminating stem ware and by using patented shapes. This did not in any way effect business, but it did result in a saving of $50 a month.

Personal experience and the result of interviews make me feel that it is more essential to know the styles and sizes to buy for the specific use than it is to know all about quality. In this connection, Chapter XIX on breakage and the list of standards should be of value.

Silverware. There is a decided tendency toward the use of more and better silver. Silver service reduces breakage, builds good will, and makes it possible to get a little higher price for foods. It is not at all unusual to find silver coffee pots, sugars, and creamers, etc., in popular-priced restaurants. Hospitals are using them quite generally.

Commercial institutions are using a better grade of flat ware because home people are patronizing public places more than ever before, and these new patrons patronize the places that give them service as good as that enjoyed in their own homes.

There are at least four companies or combinations of silver companies that manufacture high-grade silver for institutions. They have been doing so successfully for years. Therefore, it is not difficult to buy good silver. The only problem is to buy that which is best suited to the needs of the institution.

It does not pay to buy light-weight flat or hollow ware, because it does not stand up under constant use and frequent cleaning and polishing. Light-weight hollow ware dents easily. After a few trips through the silver-cleaning machine, where it comes in contact with other ware, it begins to lose its shaps. Light-weight covers become so twisted that they no longer fit.

Blanks. Flat and hollow-ware blanks should be made with at least 18 per cent of nickel silver and be covered with heavy silver plating, especially reinforced where the wear is greatest. This is at the base of forks and on the shank and bottom bowl of spoons. Knife blades and the tines of forks must be of heavy construction.

Ornate designs or unusual shapes are not economical. Also, they are difficult to keep clean. Other points to keep in mind are: square edges and corners cause greater wear; too many sizes are uneconomical; buy silver on specification—know what it is made of. Fancy silver is stolen more than plain ware. Silver should not be stored close to gas fumes; it should be washed daily in soft suds of a mild soap and dried thoroughly. Weekly machine cleaning is generally sufficient.

Many of the complaints regarding the cost of silver service are due to lack of system in its upkeep and control. L. E. Pierce, manager of the Hotel Cleveland, Cleveland, Ohio, states that their losses are not over 3 per cent a year. He attributes this to centralized control and a loyal staff. Their plan operates as follows:

Inventory. A perpetual inventory of reserve stock is maintained by the superintendent of silver. This is a loose-leaf book with a page for each kind of silver.

All reserve stock is packed in small bins in numbered packages, 100 pieces to the package. These bundles are stocked in reverse order—that is, the first hundred would be on top, with the highest numbered package at the bottom of the bin. Thus, when a withdrawal of, say spoons, is made, the top package would indicate how many spoons were taken.

All silver is washed in one place and checked every night. "This is the logical time to check silverware, because all services are available, and it is easier for the silver superintendent to trace losses at that time."

If, for example, a banquet has been held where oyster forks have been used, and any unusual number are missing, it is easy for the superintendent to make his investigation at once, with more assurance of locating the lost items than if a checkup were made the next day.

A minimum inventory of stock is set for each dining room and for room service. Each night when the check is made, replacements to maintain these quotas are withdrawn from reserve stock, and the losses are entered on the inventory, as indicated. In the case of large conventions, extra ware is issued to the dining rooms, but this goes back into stock as soon as general service is again normal. All ware for banquets is packed in hampers the night before. These are locked and delivered to the banquet department, ready for use in the morning. After midnight this silver is checked, and any unusual loss is immediately investigated.

The perpetual inventory furnishes the facts for a daily report which goes to the steward, showing the day's loss, the month's loss, and the gain. Weekly and monthly summaries of these records, with comparative totals from the previous year's reports, are also made for the management. The auditing department likewise makes its monthly inventory of silver.

These records, obviously, give the management a picture of conditions and furnish the silver superintendent information for following up losses and for use in setting a goal for future accomplishment. The fact alone that such records are regularly maintained has an important effect in stimulating care all along the line.

Other checks also play their part in reducing losses.

Room Service. A triple check on all silver going into room service has proved effective, with the result that loss in this department is almost zero. The food checker fills out a silver and linen record in triplicate when the waiter presents the tray for the customer's check. The original is held by the checker for inventorying the silver and linen when the tray is returned. The duplicate goes with the tray into the guest's room, while the triplicate is left with the floor clerk for use in checking the tray when it is brought from the room. Across the form left with the tray is printed in red the statement, "Please notify Room Service when ready to have dishes removed." This red notice seems to get the diner's attention and to detract from the fact that the slip is an inventory of silver and linen sent with his food. Nevertheless, the unobtrusive slip is found to have a good moral effect. Results speak for themselves. All the slips are later returned to the silver room so that the nightly check can be made.

Because garbage always offers an easy way for silver to get away, all this hotel's garbage is raked daily. A block and tackle hoists the cans and dumps the contents upon a platform. A workman then uses a three-pronged rake to find missing silver. After the raking is completed, the garbage is run back into the cans and the platform cleaned, ready for the next day's silver-hunting. All silver so found is counted daily, and a record is kept. At the end of each month a copy of this is taken to the kitchen steward so that he can see whether there is any undue carelessness and can train them in greater watchfulness.

Many institutions use some of the Cleveland methods in reducing loss and breakage of china. If efficient buying and definite standards of size and quality are added to these safeguards, they are certain to decrease the cost of having first-class china and silver—both of which are essential in catering to modern mass palates.

CHAPTER XVIII

ACCIDENT AND FIRE PREVENTION

Our manager was thoroughly disliked. Most of the "help" hated him, which partly accounted for the serious yet amusing accident that occurred one hot afternoon in our Mid-Western Café.

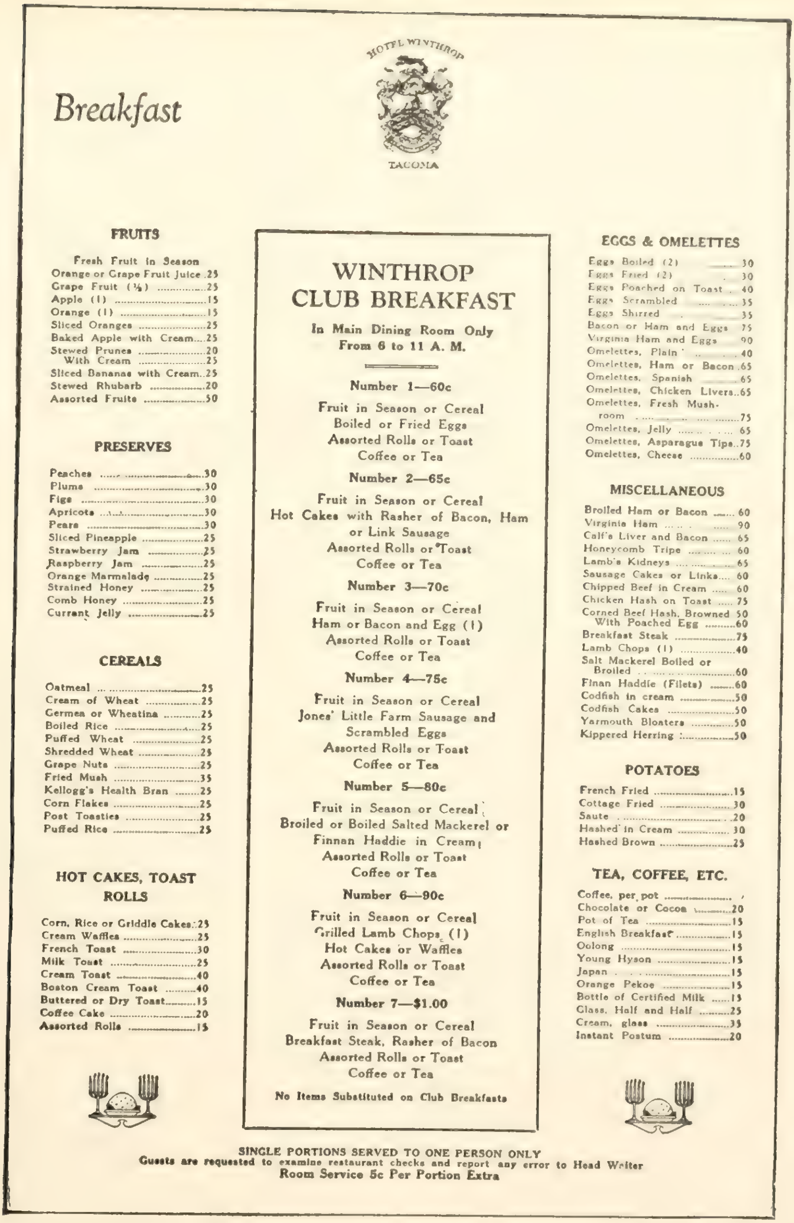
The waves of heat seemed to ripple back across the white, tiled floor that reflected the brilliant sun directly into the eyes of the counter man. Business had been quiet all day, for most of our patrons were patronizing the corner drug store, where nourishment could be taken through a straw.

It was quite natural, then, that the appearance of a customer should awaken us to our responsibility. The bus boy hurried about turning on the fans, but failed to make any of them work. The manager, impatient at the delay, fumed, shoved the boy away from the ladder, and began to do the job alone.

In the midst of his tinkering the fan started to turn; he caught his hand in one of the speeding leaves, cut several of his fingers quite badly, and in his fright fell off the ladder.

Quick Action. The undiplomatic bus boy failed to repress his smiles, which made the manager rise in wrath and chase the lad out the front door and into the street. Just as he seemed about to catch him, the boy jumped on the running-board of a passing taxi. The manager reached out to catch him. In doing so he fell in the street and ripped a long gash in his trousers.

Most of the help watched him from the window as he



Breakfast

HOTEL WINTHROP
TACOMA

FRUITS

Fresh Fruit in Season

Orange or Grape Fruit Juice	.25
Grape Fruit (½)	.25
Apple (1)	.15
Orange (1)	.15
Sliced Oranges	.25
Baked Apple with Cream	.25
Stewed Prunes	.20
With Cream	.25
Sliced Bananas with Cream	.25
Stewed Rhubarb	.20
Assorted Fruits	.50

PRESERVES

Peaches	.30
Plums	.30
Figs	.30
Apricots	.30
Pears	.30
Sliced Pineapple	.25
Strawberry Jam	.25
Raspberry Jam	.25
Orange Marmalade	.25
Strained Honey	.25
Comb Honey	.25
Currant Jelly	.25

CEREALS

Oatmeal	.25
Cream of Wheat	.25
Germea or Wheatina	.25
Boiled Rice	.25
Puffed Wheat	.25
Shredded Wheat	.25
Grape Nuts	.25
Fried Mush	.35
Kellogg's Health Bran	.25
Corn Flakes	.25
Post Toasties	.25
Puffed Rice	.25

HOT CAKES, TOAST ROLLS

Corn, Rice or Griddle Cakes	.25
Cream Waffles	.25
French Toast	.30
Milk Toast	.25
Cream Toast	.40
Boston Cream Toast	.40
Buttered or Dry Toast	.15
Coffee Cake	.20
Assorted Rolls	.15

WINTHROP CLUB BREAKFAST

In Main Dining Room Only
From 6 to 11 A. M.

Number 1—60c

Fruit in Season or Cereal
Boiled or Fried Eggs
Assorted Rolls or Toast
Coffee or Tea

Number 2—65c

Fruit in Season or Cereal
Hot Cakes with Rasher of Bacon, Ham or Link Sausage
Assorted Rolls or Toast
Coffee or Tea

Number 3—70c

Fruit in Season or Cereal
Ham or Bacon and Egg (1)
Assorted Rolls or Toast
Coffee or Tea

Number 4—75c

Fruit in Season or Cereal
Jones' Little Farm Sausage and Scrambled Eggs
Assorted Rolls or Toast
Coffee or Tea

Number 5—80c

Fruit in Season or Cereal
Broiled or Boiled Salted Mackerel or Finnan Haddie in Cream
Assorted Rolls or Toast
Coffee or Tea

Number 6—90c

Fruit in Season or Cereal
Grilled Lamb Chops (1)
Hot Cakes or Waffles
Assorted Rolls or Toast
Coffee or Tea

Number 7—$1.00

Fruit in Season or Cereal
Breakfast Steak, Rasher of Bacon
Assorted Rolls or Toast
Coffee or Tea

No Items Substituted on Club Breakfasts

EGGS & OMELETTES

Eggs Boiled (2)	.30
Eggs Fried (2)	.30
Eggs Poached on Toast	.40
Eggs Scrambled	.35
Eggs Shirred	.35
Bacon or Ham and Eggs	.75
Virginia Ham and Eggs	.90
Omelettes, Plain	.40
Omelettes, Ham or Bacon	.65
Omelettes, Spanish	.65
Omelettes, Chicken Livers	.65
Omelettes, Fresh Mushroom	.75
Omelettes, Jelly	.65
Omelettes, Asparagus Tips	.75
Omelettes, Cheese	.60

MISCELLANEOUS

Broiled Ham or Bacon	.60
Virginia Ham	.90
Calf's Liver and Bacon	.65
Honeycomb Tripe	.60
Lamb's Kidneys	.65
Sausage Cakes or Links	.60
Chipped Beef in Cream	.60
Chicken Hash on Toast	.75
Corned Beef Hash, Browned	.50
With Poached Egg	.60
Breakfast Steak	.75
Lamb Chops (1)	.40
Salt Mackerel Boiled or Broiled	.60
Finan Haddie (Filets)	.60
Codfish in cream	.50
Codfish Cakes	.50
Yarmouth Bloaters	.50
Kippered Herring	.50

POTATOES

French Fried	.15
Cottage Fried	.30
Saute	.20
Hashed in Cream	.30
Hashed Brown	.25

TEA, COFFEE, ETC.

Coffee, per pot	[illegible]
Chocolate or Cocoa	.20
Pot of Tea	.15
English Breakfast	.15
Oolong	.15
Young Hyson	.15
Japan	.15
Orange Pekoe	.15
Bottle of Certified Milk	.15
Glass, Half and Half	.25
Cream, glass	.35
Instant Postum	.20

SINGLE PORTIONS SERVED TO ONE PERSON ONLY
Guests are requested to examine restaurant checks and report any error to Head Writer
Room Service 5c Per Portion Extra

Fig. 47. A well-laid-out breakfast menu.

got up and limped toward the café—his injured hand hanging at his side, while the other held together the slit in his trousers.

Not all accidents are so spectacular, but many of them are much more serious. The following is a list of many accidents that have occurred in kitchens:

Cuts due to broken glass.
Falls on slippery floors.
Falls on slippery walks.
Tripping over obstructions.
Cuts from can-openers.
Falls with overloaded trays.
Falls due to wabbly chairs and stools.
Cuts due to breaking of glass windows.
Lip cuts from chipped glasses.
Shocks from open electric switches.
Falls from ladders, chairs, boxes, etc.
Collisions due to swinging or revolving doors.
Machines or equipment without safeguards.
Fatigue due to poor ventilation.
Eye strain due to improper lighting.
Injuries due to merchandise falling from shelves.
Hands, clothing, or hair caught in electric fans.
Falls on dark, steep, slippery, or broken stairs.
Burns from stoves, steam, hot water, and the like.
Tripping over mats, carpets, and the like.
Scalding due to overturned kettles.
Cuts from knives with sharp edges upturned.
Hands or fingers squeezed in doors, windows, drawers, etc.

Accidents destroy good will, disrupt discipline, cause important loss of time, increase labor turnover, and

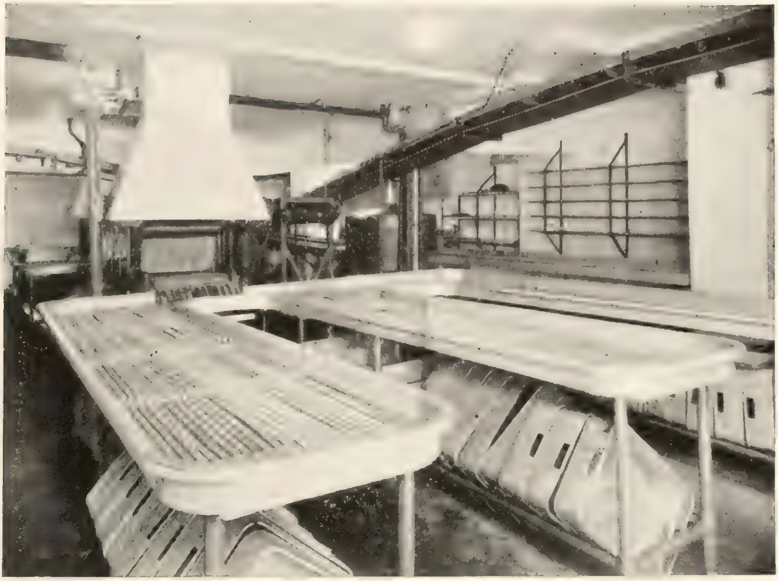


Plate 25. The automatic conveyor shown in this photograph is used in the Bismarck hotel in Chicago.

Plate 26. The best knives, cleavers, and saws are an economy.

very often bring a direct financial loss because of need of repairs, doctor bills, or suits for damages. In the case of cuts, especially, unless prompt measures are taken, there is the ever-present danger of infection.

Preventions. The first and most essential protective feature is insurance that will cover every possible accident. In this particular case protection comes ahead of prevention, but this does not mean that preventative measures should be slighted or neglected. These can be grouped in four major classifications:

1. Examination or inspection of furniture, fixtures, and equipment.
2. Timely repairs of furniture, fixtures, and equipment.
3. Education of employees.
4. Standardization of jobs.

As an employee in a prominent hotel in Switzerland, I learned the value of thorough inspection. At least once a month every department head tested all the equipment and furnishings, such as machinery, stoves, urns, switches, chairs, tables, fans, windows, doors, lights, etc. He made out a special report on the condition of each item inspected. This may be a little too detailed for American practice, but the value of frequent and thorough inspections is unquestionable.

Inspections. However, inspections without repairs are of little value. Furniture, fixtures, and equipment that require repairs should have immediate attention. Therefore, all necessary repairs should be recorded and followed up until such time as they are pronounced in perfect condition.

Many accidents can be prevented if the employees are taught to perform all their duties in the most efficient way. This means that the manager must be the thinker and also instruct the employees to carry out his plans. A thoughtful manager, with an engineering mind, can change layouts so that few or no accidents occur due to confusion or cross routes of service. He can arrange lighting, ventilating, and heating so that accidents from these sources become negligible. Electric switches can be closed; guards placed on open machines; slippery floors protected with a nonskid surface; windows placed in service doors; and out-of-door walks kept dry and free from débris.

Double doors should have windows, heavy goods should never be stored on top shelves, stairs should be well lighted and all mats should lie flat.

Rules. Efficient management demands a practical method for doing work that can be standardized. Trays should never be overloaded; employees should wear rubber-heeled shoes; knives and cleavers should not be used for can-openers; knives should be put into sheaths when not in use; glasses should be gently placed into the washer; mitts or cloths should be provided for the handling of hot kettles; and, most important of all, a completely equipped first-aid cabinet should be provided in each working department. This cabinet should contain the best antiseptics, gauze, bandages, adhesive tape, and so on. Prompt and effective first aid will prevent the danger of infection and may mean the saving of life itself. Booklets which tell in detail how to administer first aid may be obtained from the manufacturers of surgical dressings. These should be obtained and studied.

Watch Your Step. All accidents cannot be prevented. Most of them, however, result from carelessness and inefficiency or poor management. Regardless of whether or not they are due to one cause or another, it is essential to carry protective insurance and be able to give first aid to the person injured.

Fire. Fire is the next greatest enemy in a kitchen. One little blaze often wipes out years of patient, hard work and careful saving. Therefore, be sure that you have enough insurance to protect your investment.

Most kitchen fires start from grease on the ranges or the hoods above ranges. Other main causes are smoking, defective chimneys and flues, spontaneous combustion, open lights, and escaping gas. The following are preventative measures:

> Do not permit smoking in the kitchen or in working quarters.
>
> Do not allow cooks to burn out their chimneys by pouring old grease on a hot fire.
>
> Flues should be examined carefully and cleaned thoroughly spring and fall.
>
> Hoods over ranges should be thoroughly cleaned at least once a month.
>
> Tops of stoves should be cleaned every day.
>
> All electrical switches should be inclosed.
>
> All floors, walls, and ceilings should be of fireproof construction.
>
> Waste, oils, grease, etc., should be kept in a coverered galvanized iron can.
>
> Bank fires before leaving at night and remove all grease pots from top of stove.
>
> Keep all connections tight on gas and electrical equipment.

Have all wiring well insulated.

If acetylene gas is used, the generator should be housed in a separate structure some distance from the kitchen.

Do not let grease collect in the ventilating pipes.

Have handy extinguishers—easily operated and always tested—near the ranges in the pantry and in every working department.

Water spreads grease fires. Good extinguishers smother the flames immediately.

Many of the most progressive kitchens in the country are equipped with a sprinkler system. Big business believes in protecting its investment.

Safety First. Accidents and fires can be materially reduced through education. A "safety first" campaign can be made successful by appealing to each employee on a selfish basis. Show him graphically the physical suffering and financial loss suffered by those who have been injured in the kitchen.

Photographs and cards can be used to show the principal causes of accidents.

Practically nothing has been done in institutions to educate employees along these lines. No one seems to realize that the loss affects the business as well as the individual.

Insurance may protect employees, property, and even possible profits, but it can never pay for the mental strain and actual physical pain due to accidents and fires, the great majority of which can be prevented.

We owe it to ourselves, our employees, and society, to do all in our power to prevent loss and suffering due to accidents and fires.

CHAPTER XIX

HOW TO REDUCE BREAKAGE

During the year of 1923 china and glass breakage cost the Detroit Statler $35,000, an average of $35 a year per room.

A chain of hotels that served 8,000,000 meals, 6,000,000 to guests, and 2,000,000 to employees, reports an annual consumption of 550,000 pieces of china and 300,000 pieces of glassware.

On the commoner pieces of china alone this company reports the following losses for a year:

Kind	*In Service*	*Consumption*
Dinner plates	19,000	47,000
Bread and butter plates	19,000	84,000
Soup plates	7,000	21,000
Coffee cups	10,000	102,000
Saucers	8,000	54,000
Bouillon cups	5,000	22,000
Egg cups	3,000	5,000
Meat platters	2,000	16,000
Demi-tasse cups	6,000	16,000
Demi-tasse saucers	6,000	15,000
Salad plates	19,000	56,000

Glassware fared even worse as this table shows:

Kind	*In Service*	*Consumption*
Water goblets	8,000	79,000
Grill tumblers	3,000	54,000
Sherbet glasses	9,000	36,000
Oyster-cocktail glasses	4,000	15,000
Lemonade glasses	1,000	9,000
Beverage glasses	8,000	56,000
Room tumblers	7,000	7,000

In a restaurant with which I am familiar the breakage amounts to $12.00 a day—a cent per each person served. Numerous hospitals and institutions have a hundred-per-cent replacement each year. These are staggering figures. But the fact still remains that little is being done to prevent breakage.

Breakage is due to

Rough or careless handling
Cheap or defective ware
Accidents (guests or employees)

Where They Break. This breakage takes place while—

1. Barrels and crates are being opened
2. Dishes and glasses are being placed on shelves
3. They are being transported about the kitchen, storerooms or to and from room service
4. They are stacked on trays
5. Removal to dish-washer
6. Dishes are removed from trays to sorting table
7. Being scraped
8. They are put through the washer
9. Being dried and stacked
10. They are transported to the shelves

Contrary to popular opinion, few dishes are broken in washers, and then only when operators are careless. The greatest breakage is due to causes Nos. 3, 4, 6, 7 and 9.

The First Step. Breakage can be decreased by

(1) Purchasing better china and glasses
(2) Reducing physical hazards
(3) Education

The purchasing of china and glassware is covered in another chapter. Therefore, No. 2 will be considered at this time. By physical hazards I mean slippery floors, small or poorly constructed trays, inefficient layout, especially of entrance and exit doors, shelves that are too high or too low, hard surface of tables or shelves, lack of storage space, layout of sorting table, and low faucets (where dishes are washed by hand).

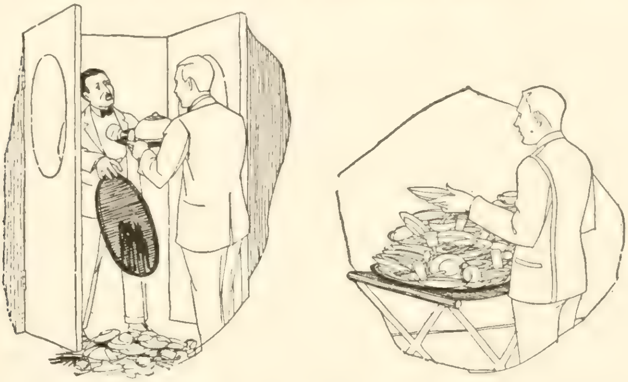


Fig. 48. Overloaded trays, failure to sort china, silver, and glasses, and single entrances and exits from kitchens cause unusual breakage.

With such a list as this the manager can trace or blaze the breakage trail. Most of the corrections can be made without much cost or effort.

Floors that are cleaned properly should not be slippery. If they are, it is no doubt due to too much soap, not enough water, or the wrong kind of cleanser.

Shelves should be high enough to stack dishes without difficulty. But shelves must not permit of large stacks of dishes. In some heaters it is impossible to pile quantities greater than the following: in one stack, six cups, twelve plates, six bowls, twelve saucers, etc. Glasses are not piled one into the other.

In other heaters the surface is covered with a cheap flannel. This prevents chipping.

Many sorting tables have rubber, cork, linoleum, or composition tops and sides. Some of the tables have special soft rubber sides to the outlet to the garbage can. A little study will reveal any number of places where chipping and breaking can be prevented.

The study of layout and doorways is more difficult, but almost always advisable. Single doors between dining rooms and kitchens, and layout that requires cross traffic are expensive mistakes. The many floor plans in this book show various ways of preventing this cross traffic by using "loop layout."

Education. Education reduced breakage 40 per cent in the Cleveland Statler. As a result, similar plans have been used in other Statler houses. Malcolm E. Woolley has written more about this important subject than any other writer, so I shall take excerpts from some of his articles in *Hotel* and *Restaurant Management* magazines:

> Bus boys were taught to stack dishes properly. Large dishes such as platters (and this also applies to silver platters if they are used), dinner plates and service plates should be stacked at the bottom of the tray. The smaller plates should be stacked on top of them so that at the top you have the saucers, butter chips, butter plates, and finally the cups. Cups should be stacked bottom upward and not more than two cups should be superimposed on one another.
>
> The silver should be removed before the china is stacked, and piled on a separate tray. Some hotels instruct their bus boys to put the silver in the niches between the edges of the dishes at the bottom of the tray, but I do not recommend this practice. Other hotels permit the stacking of silverware on the tops of trays loaded with china, but this, too, is dangerous, particularly where cups occupy the trays as well as dishes.
>
> Trays should never be overstocked or piled up in such a way that one dish is rocking or balancing on another. To determine whether a tray is properly loaded, the bus boy should test it by sliding it gently back and

forth while it is still on the side table. It is far better for one dish to slip off (with the chance of the boy's catching it in time) than for one unbalanced dish to result in the loss of the entire trayful.

Stacking Separately. Glassware should never be stacked with china. This is important because in the first place the two should go to separate washing tables, and in the second place because glassware does not lend itself to convenient stacking with china on account of its shape. It is usually safer to stack glasses bottom side up, which means, of course, that each bus boy should have a pail or receptacle in which he can deposit the ice and water before stacking the glasses. It is especially advisable to stack stemmed goblets bottom side up. It is never advisable to place tumblers inside one another, the chief reason for this being that the man who unloads the tray frequently experiences difficulty in separating the glasses. I believe that about 10 per cent of all glass breakage can be attributed to this practice.

The proper stacking of dishes in the dish-washing machine requires a great deal of care and practice. They should be packed securely, each dish being tested before another is placed beside it. As a rule, however, little breakage occurs from the time the bus boy deposits the dishes until after they have gone through the machine.

Greatest Breakage. The greatest amount of breakage occurs through improper stacking on the work table after the dishes have been washed or in carrying the glass and chinaware from the work table to the heater. In order to prevent breakage at this point in the process, an associate of mine once devised a simple little plan which, nevertheless, proved most effective. Every dish-washer, no matter how carefully he has been trained, is inclined to overstack the dishes, with the result that the slightest jar will result in the loss of the whole pile. My friend's plan consisted simply of placing wire stalls along the wall over the clean dish counter. These stalls extended about four feet above the table. They were made of ordinary fine-mesh netting and were so constructed as to fit the various sized plates. It was a cause for discharge for a dish-washer to place a dish in the wrong stall. This little scheme eliminated practically all of the somewhat heavy breakage that had previously occurred at the work table.

Storage in Heater. The heater should be located as closely as possible to the work table and the man that carries the dishes from one to the other should be instructed not to handle too many at a time. He should also be shown how to carry the dishes with the assistance of a damp towel. One end of this towel should be placed beneath the pile and the remainder wrapped around the lower part of it in such a way that with his arms he forms a sort of basket. The damp towel prevents the dishes from slipping and eliminates the necessity of dropping them because of their heat.

Cups should be stacked not more than six high—that is, one inside the other with the handles always reversed. It is also a good plan to carry cups from the work table to the heater in baskets. Never permit a dish-washer to run a string of cups along the length of his arm, as it takes a good deal of practice to do this, and even then is not always successful.

Psychology plays a big part in the elimination of china and glass breakage. The above-mentioned associate of mine once had a sign painted in Greek (the nationality of most of the men in his department) reading as follows:

WHAT DOES YOUR WIFE SAY
WHEN YOU BREAK A
DISH AT HOME

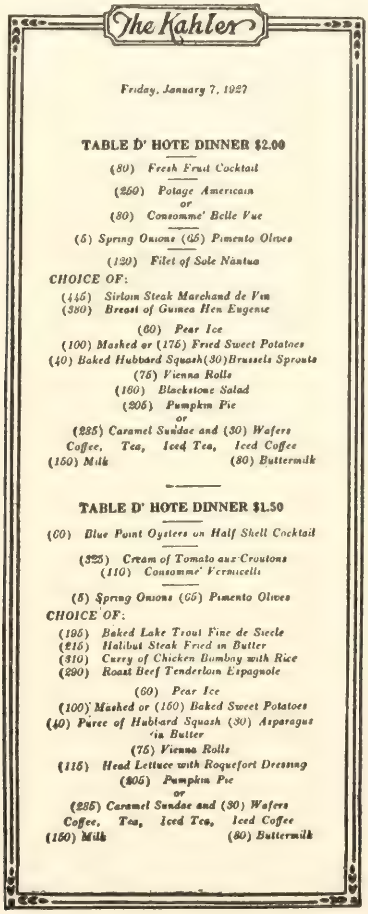
Although this sign amused the workers at first, it also had the desired effect. My friend also made it a practice to go into the dish pantry occasionally, and—apparently as though by accident—drop two or three dishes on the floor. He would then stand and look at the broken pieces as though he had done something very serious. He would take a dollar bill from his pocket and say to the head dish-washer, loudly enough for the head dish-washer to hear, "That is going to cost me one dollar, because those dishes are worth just that." In short, my friend found it worth while to use a number of simple devices such as these in order to educate the dish-washers to the fact that the property they were handling had a definite value.

Except where abnormal conditions prevail and where dish-washing help is plentiful, fines are impractical, in my opinion. I do believe, however, in imposing an occasional week of fines, the proceeds being turned over to the employees' benefit fund.

The head dish-washer in a hotel with which I was once connected always made it a practice to explain to a new helper the kind of china that the hotel was using and the cost of every piece as compared with the china that was probably being used in the worker's home. He also had a chart drawn up and placed on the wall which listed and described every piece of china and glassware in Greek and gave the price per piece and per dozen. One column of this chart was headed, "Here's what you throw away when you break a dozen," and it was here that the prices per dozen were listed.

Statler Educates. In two other articles in *Hotel Management* magazine, Mr. Woolley tells how an educational campaign was conducted at the Statler house in Detroit and Cleveland.

The campaign started with the posting of "teaser" signs (that is, signs which stimulated the curiosity without giving any specific information as to what they were



The Kahler

Friday, January 7, 1927

TABLE D' HOTE DINNER $2.00

(80) *Fresh Fruit Cocktail*

(250) *Potage Americain*
or
(80) *Consomme' Belle Vue*

(5) *Spring Onions* (65) *Pimento Olives*

(120) *Filet of Sole Nantua*

CHOICE OF:
(445) *Sirloin Steak Marchand de Vin*
(380) *Breast of Guinea Hen Eugenie*

(60) *Pear Ice*
(100) *Mashed or* (175) *Fried Sweet Potatoes*
(40) *Baked Hubbard Squash* (30) *Brussels Sprouts*
(75) *Vienna Rolls*
(160) *Blackstone Salad*
(205) *Pumpkin Pie*
or
(285) *Caramel Sundae and* (30) *Wafers*
Coffee, Tea, Iced Tea, Iced Coffee
(150) *Milk* (80) *Buttermilk*

TABLE D' HOTE DINNER $1.50

(60) *Blue Point Oysters on Half Shell Cocktail*

(325) *Cream of Tomato aux Croutons*
(110) *Consomme' Vermicelli*

(5) *Spring Onions* (65) *Pimento Olives*

CHOICE OF:
(195) *Baked Lake Trout Fine de Siecle*
(215) *Halibut Steak Fried in Butter*
(310) *Curry of Chicken Bombay with Rice*
(290) *Roast Beef Tenderloin Espagnole*

(60) *Pear Ice*
(100) *Mashed or* (150) *Baked Sweet Potatoes*
(40) *Puree of Hubbard Squash* (30) *Asparagus in Butter*
(75) *Vienna Rolls*
(115) *Head Lettuce with Roquefort Dressing*
(205) *Pumpkin Pie*
or
(285) *Caramel Sundae and* (30) *Wafers*
Coffee, Tea, Iced Tea, Iced Coffee
(150) *Milk* (80) *Buttermilk*

Fig. 49. Table d'hote dinner menu from the Kahler Hotel in Rochester, Minnesota.

all about) in the service halls, locker rooms, and kitchens. These signs read, "$95 a Day" and "$35,000 a Year."

Since none of the employees had had any advance information as to what these cards referred to, a considerable amount of interest and comment resulted from their appearance. Some of the employees thought the figures referred to the manager's salary, while others had the impression that they had something to do with the hotel's profits.

Later on an addition was made to the signs, reading, "This amount was spent by Hotel Statler in one year for broken china and glass," and thenceforth the campaign was conducted in earnest.

Posters were displayed. They drew easily understood comparisons between the cost of the broken articles and staple foods, such as coffee, bread, and the like. One, for instance, read: "This plate cost 37 cents; 37 cents buys one pound of coffee," both the plate and the pound of coffee being illustrated.

At the end of the month during which the campaign was inaugurated, an elaborate exhibit was arranged in the ballroom, to which were invited all employees who could be temporarily spared from their duties. Posters were arranged along one side of the room and under each was placed the particular food item used in the cost comparison. The piece of china or glass with which it was compared in the poster was also displayed. The particular significance of this display lay in the fact that it enabled employees to easily visualize the cost of the breakage.

Another exhibit of equal interest was shown on the opposite side of the room. A bushel basket containing the glass broken the week before was placed on one table, while another basket containing last week's broken china faced it. Two trays were also on display—one showing the wrong and the other the proper methods of stacking plates and glassware.

These exhibits were supplemented with graphic signs reading: "The breakage of eight-inch plates during the year 1923, if put side by side, would measure 5,495 feet." As a final reminder, every employee received in his pay envelope cards such as the following:

> This hotel can't run without profits.
>
> If every department wasted as much money as your department did last year in *unnecessary* breakage, profits would be pretty small.

CHAPTER XX

SUPER-SANITATION

Twice in the past month I have observed what would have been termed as unusual ten years ago—the owners of a large chain of hotels and an equally large chain of successful restaurants making personal tours of inspection through their kitchens.

On my desk is a letter from Ray W. Clark, manager of the Winthrop Hotel in Tacoma, Wash. The letter goes into details, explaining the success of a series of hotel and restaurant kitchen tours undertaken by outsiders—students from local schools, boys as well as girls.

In my notebook is a list of over 600 kitchens that I have inspected during the past four years. Four hundred and twelve of the 600 are marked with the letters "S. S.", which mean Super-Sanitation. That means almost spotless. What a great change in ten years!

If you are an "old-timer" in this business of feeding folks, you know how difficult it is to keep a kitchen super-sanitary. You will remember the days when a manager would have been considered "crazy" who even thought of staging "kitchen tours." Even today there are institutions having kitchens where the manager or superintendent hardly dares enter, let alone outsiders.

There's a reason—in fact, two of them. First, the manager or superintendent of such a house does not know anything about the "back of the house." Second, the kitchen is so filthy that they are ashamed to enter. Fortunately, this is the exception. I marvel at the great transformation each time I think of kitchens as they were ten years ago.

Kitchen sanitation is all-inclusive. It covers the health and personal cleanliness of employees, the condition of equipment, furnishings, utensils, floors, windows, walls, ceilings, machinery, food-storage space, foods, water, ranges, sinks, toilets, lockers, and garbage cans. Super-sanitation is one of the cardinal principles of success in the present-day business of feeding folks.

Guaranteeing Sanitation. But the job of guaranteeing sanitation is not merely as simple as writing about it. Most kitchen employees are "floaters" who do not take an interest in the place. They do not try to save money for their employers. So it is up to the department heads to protect their employer in this particular. This is not difficult. It can be made very interesting, as in the case of the Statler Hotels Company and the Mills Restaurant Company. They made a thorough study of cleaning—after which they standardized on specific products for each individual job of cleaning and polishing.

In Schrafft's restaurants all kitchens are inspected periodically by the physician whom the management employs to guard the health of the workers.

Cleaning Charts. Other managers have gone even a step further. In one restaurant kitchen is a cleaning and polishing chart showing the name of every piece of equipment and surface that must be cleaned or polished. Opposite this listing is the name of the product and how often it should be used. The following will show how inclusive the list is:

Coal ranges, electric equipment, gas ranges, gas-burners, hoods, steam tables, meat blocks, floors, sinks, wash bowls, toilets, ice boxes (interior and exterior), windows, garbage cans, scrap tables, urns, steam kettles, aluminum utensils, nickel utensils, dish-washing machines, china, silverware, glassware, pots, lockers, food bins, light globes, machines, wood tables, aluminum trays, water bottles, and condiment containers.

Material Savings. This is an indication of what can be done when time and thought are given to this important subject. Such a study, in a restaurant with which I am familiar, resulted in a saving of over $400 a year. The saving of time made it possible for one of the dishwashers to do all the cleaning. His familiarity with the use of the cleaning compounds effected a great saving in material, as some products require less than others to do the work. I realize fully what a difficult problem it is to find the best products for each specific cleaning job. My only recommendation—and one that is followed by many of the most successful managers—is to ask each manufacturer to send free samples for a test. At times they are in a position to have a representative assist with these tests.

Next in importance—and at times of first importance—comes the problem of insect and rodent extermination. It must be obvious that perfect sanitation is the best possible prevention against these uninvited guests. Then, too, an insecticide should be used as a prevention as well as a cure.

Here it is also necessary to standardize and systematize. Experiment until you find a product which does the job. Then use that product often and thoroughly enough to prevent rather than cure. Do not forget that insects breed in corners and under and in back of equipment.

No Corners. In the modern kitchen all corners are

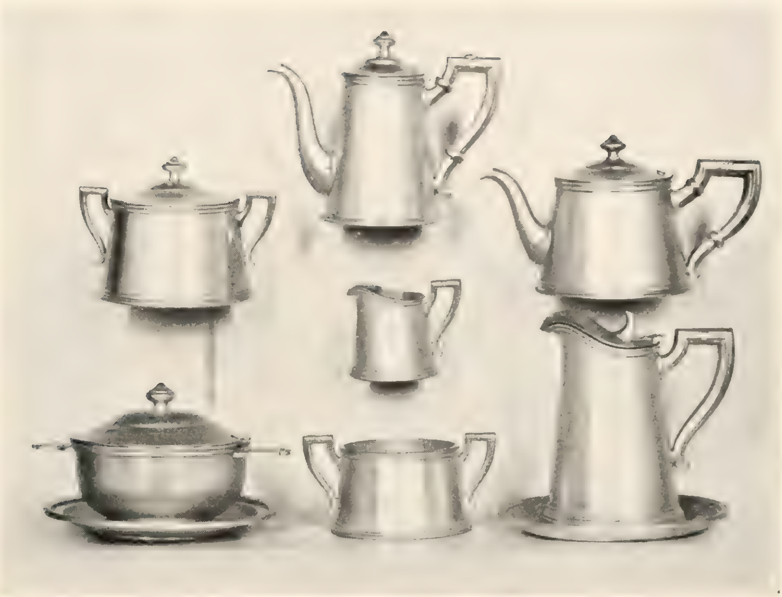


Plate 27. The modern trend is toward simplicity of design in hollow and flat ware. It is lower in price, wears better, and cleans more easily.

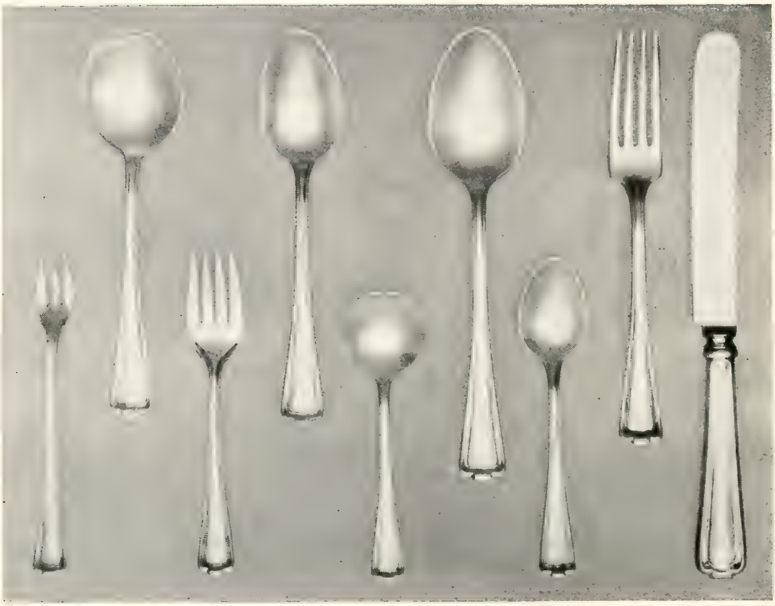


Plate 28. A dainty design in flat ware. Recent investigations prove that good silver is not only an economy but also a decided good-will builder.

rounded so that there is no place for insects to thrive. All equipment is off the floor, so that there are no inaccessible spots.

Many modern kitchens have a floor that inclines slightly to one corner of the room. Several hot-water connections make it possible to flush every corner of the room with boiling water and then drain it off into a floor drain. This is ideal.

Replies to a questionnaire mailed to several hundred chefs and stewards show that they have the following rules and suggestions regarding sanitation:

> Absolute cleanliness is the best deodorizer.
>
> Smoking or chewing tobacco in kitchens should be prohibited.
>
> Frequent painting encourages sanitation and discourages insects.
>
> Use nonpoisonous insecticides, polishes, detergents, and cleaning compounds.
>
> All food workers should be free from any form of contagious disease.
>
> All food workers should wear uniforms and hats and should have only clean hand cloths at their waists.
>
> Food workers should keep their nails manicured and their hands in a sanitary condition.
>
> Prevention is better than a cure for insects. Absolute cleanliness and an insecticide are preventive measures.
>
> Soap dispensers should be used in toilets, and above all wash bowls. Use only an odorless soap.
>
> An incinerator is practical, economical, and a sanitary necessity. There is a size for every requirement.

Have a specified time for all cleaning. Have it clearly understood who is responsible for it and what is to be used for the cleaning.

Standardize on high-grade products for cleaning, deodorizing, and insect extermination. It is shortsighted policy to buy these products on a price basis.

It pays in time, labor and material to get equipment having a metal finish which does not stain, tarnish or require polishing. In addition, such equipment has a much longer life.

Have containers for soiled linen, waste paper, cans and boxes, egg shells, etc., at a point where they are needed most. Receptacles with a swing top are most ideal for this purpose.

Refrigerators should be given special attention. Remove tainted food immediately. At least twice each week scour the inside and rinse out with boiling water. Then let it dry thoroughly. A clean ice box with food products well arranged is a delight to the eye.

Garbage cans should be flushed every day with boiling water. If you do not have an incinerator, then by all means be sure that garbage is collected every day. Keep the covers on cans at all times. A dirty garbage can breeds insects and disease.

Get at sinks more often. Flush them out with boiling water and clean the drain pipes with a solution that will eat the dirt and grease as it goes through.

Progressive manufacturers of soaps, cleaning compounds, detergents, and insecticides have service departments which make a specialty of giving free advice on problems of kitchen sanitation. Take advantage of their services.

Water-Softeners. A water-softener is a good investment where water is hard. Such equipment does more than make cleaning easier; it reduces the amount of soap or cleaning compounds necessary to do a good job. In addition, it reduces wear and cuts the time needed for perfect cleaning.

There are now on the market several successful, quick-drying paints with a pyroxylin base. These can be applied with a spray gun or brush. In either case they dry so quickly that an entire kitchen can be repainted during the night. These new finishes can be washed frequently without cracking or chipping.

One of the best methods of building business—and one of the least expensive—is to invite customers to go through the kitchen. If it is clean and sweet smelling, it is surprising how this appeals to people and how ready they are to advertise it to their friends and acquaintances.

Some of the most successful managers have told me that their kitchens must always be in perfect condition to stand inspection from the most critical housewife. That's an excellent composite picture to keep in mind when you think of your kitchen. When we can make people believe that our kitchens are as sweet and clean as those in successful food factories, we shall enjoy an increase in business similar to theirs. Since they have made sanitation a paramount consideration—as they have in recent years—they have experienced really astonishing sales records.

Not many years ago the general public was not allowed to see the kitchen in a hospital. But now progressive superintendents realize that nothing builds public confidence like frankness and a willingness to take them behind the scenes. Slowly but surely hospitals are being humanized.

Close Relatives. Sanitation is closely related to the chapters on job analysis, employee manuals, waste, layout, equipment, standardization, illumination, and maintenance.

Labor turnover is not so great in clean kitchens; well lighted kitchens are usually kept in a cleaner condition; job analysis insures sanitation without waste of time or materials. Standardization accomplishes much the same.

The progressive manager, superintendent, chef, or steward, must realize that this is the age of sanitation. It begins at the source of the food supply and is endless.

WHAT OTHERS SAY

"All of our stores are inspected periodically by the physician whom we employ to guard the health of our workers."

F. G. Shattuck.

"We saved as high as 56.4 per cent on cleaning costs by studying the subject and standardizing on a limited number of high-grade and uniform soaps, powders, and compounds. Definite instructions for using and a constant check-up result in better cleaning at lower prices."

J. O. Mills.

"To be certain the ice boxes are cleaned faithfully, we have reduced the task in our house to a systematic and mechanical schedule. Over each compartment door in the refrigerators there is a brass plate showing the day of the week that that particular compartment is to be cleaned."

C. A. Wood.

"'Flashlight Sadie' is the name given to a young lady who has the position of 'official snooper' for a large chain organization. Dressed in white and armed with a flashlight, she visits every kitchen, storeroom, and all working quarters. Not a corner escapes her attention. And her reports are true pictures of the sanitary condition in each department."

W. R. Needham.

"Our refrigerators are located nearest the point where the food that is stored in them is to be used. Experience has shown us that metal shelves, slatted or otherwise, are superior to wooden shelves for ice box and refrigerator use. Wooden shelves 'swell' and after some usage they are difficult to fit back in the ice box or refrigerator, even when put back in the same place from which they were removed. Wooden shelves waste both time and temper in this way."

C. A. Wood.

"Home economics has long applied the principles of sanitation to the home kitchen and carries them over just as effectively to the restaurant kitchen. Lockers and showers for employees, medical inspection, and an insistence upon absolute cleanliness in handling food are all indications of the application of science to the commercial kitchen. The pity of it is that these are precautions employed in the largest restaurants, while the small eating-place is too often found sadly lacking. The restaurant kitchen needs the sharp eyes of 'mother' to look for dirt or worse things in the corners and behind the benches. When our pots and pans are properly washed, we will cease to have the complaint that restaurant food all 'tastes alike.' It is bound to taste alike when pots and pans are washed as they are in many restaurants today."

Linda Spence Brown.

"It is no rare occurrence in the kitchen for some one to tip over a pail of hot soup. This, of course, results in a messy floor and one that is often the cause of a nasty 'spill' for some other hurrying employee. We remedied this by putting a channel iron to form a pan around the kettles, the inside being sloped to a drain. A large, substantial stable drain was put in so that a shovel could be used to clean it out. The two-inch drains we formerly used were always getting plugged up. Nor would the old cement-reinforced curbing we used in place of the present channel iron stand up under the constant wear and tear it was subjected to. Our chef is so enthusiastic over the new improvement that he boastfully claims it is worth $10,000 to him."

Stanley Barnaby.

CHAPTER XXI

THE VALUE OF STANDARDIZATION

> THE necessity of maintaining a high wage level requires that all processes of manufacture and distribution be reduced to the lowest possible cost. This can be done through the elimination of those wastes arising out of too high a degree of diversification in certain basic products. Today dozens of different sizes, styles, types, and patterns of the most commonplace articles are placed in the market by manufacturers who must possess special equipment and skill to produce these endless variations. Merchants accumulate great stocks, which turn but slowly because of the excessive diversity and lack of interchangeability in their components. Because of this situation many manufacturers and distributors favor cooperation for simplification and standardization.
>
> The saving in national effort through such cooperation, as demonstrated by many well-known examples of simplification and standardization, runs into millions of dollars. There is a great area still untouched, in which the application of these waste-eliminating measures may well save not millions but billions. The consequent reduction of manufacturing, selling, and distributing costs, and the release, for active use, of millions now tied up in slow-moving stocks, combine to yield savings eventually reaching the consumer in lower prices, thus increasing his real wages and assisting him to a higher standard of living. The rate of our advance must be, and will be, in proportion to the extent in which we all cooperate for the elimination of waste.
>
> HERBERT HOOVER.

Standardization is more difficult in hotels, restaurants, clubs, schools, hospitals, and institutions than in other lines of business. This is not the result of having to purchase as many individual items as most stores carry in stock, but because the buyers in institutions are subjected to so much pressure from within and without.

Hotel and restaurant buyers often purchase goods because they are afraid to lose a guest or customer. Hospital buyers come under the influence of those who have donated to the cause. In clubs there is the necessity of keeping peace with the members who have something to sell. School and institutional buying becomes a political football. Efficient buying is impossible under any one of these conditions.

A little over a year ago I talked to a steward who had seventeen brands of ginger ale on his shelves. Twelve of them were in green bottles, capped and decorated to imitate a national best seller.

"It's difficult to understand this condition under your management," I said speaking to the steward, who was an old friend.

"Understand ——!" he replied, profanely. "What's a fellow going to do—let the house lose a lot of guests?"

"Let's figure it out," I suggested. "I've never tried, but it might not be unprofitable to lose a few guests once in a while."

So we took stock. He had $435 tied up in ginger ale. An analysis showed that the sales were 94.2 per cent for three brands—two national and one local. In other words, he carried fourteen brands on which he did only 5.8 per cent of his business, whereas on the other three brands he did 94.2 per cent.

Over three hundred dollars was tied up in the ginger ale that could be sold only under pressure or by substituting it for the brand that insured guest satisfaction.

At the rate of 6 per cent on the money tied up, it cost him $18 a year to carry the extra stock. It took up two shelves of space, time each month for accounting, inventory, empty-bottle assorting, menu space, etc. Quite frequently waiters made a mistake by trying to pass off the old stock on some one who would take nothing but a known product.

We estimated that it cost $225 a year to carry the fourteen odd slow-moving brands. At the rate of profit being made in that house, the representatives of the fourteen other brands would have to spend $1,850 a year, or over $132 apiece each year, which was highly improbable.

"From now on I'm hard boiled," he said as he saw the conclusive evidence.

"Not hard-boiled," I replied. "Just put yourself in the shoes of any good retailer. He buys goods that the public demands."

On my last visit this same steward had his stock down to four brands. In two and a half months' time only three demands had been made for other brands.

A definite policy on this is saving the house time and money, and if the other two good hotels in this city had the same policy, all would profit.

This ginger-ale episode is typical of buying, whether it is china, glassware, cleaning compounds, or canned goods. Buyers are too easily swayed by arguments of salesmen who sell something that is "just as good."

In an issue of *The Alarm Clock* James E. McNamara, of Horwath & Horwath, takes up ideals for standardization in restaurants. The article is reproduced because the same principles can be applied to most institutions and because the plan is in successful operation in the Savarin Restaurants.

> The standardization of portions should begin with the purchasing of the food, followed by the establishing of standards, embodying the preparation of the various dishes, and finally prescribing definite sizes and appearance of the portions.

Canned goods, groceries, and other staple commodities have been standardized to such a degree by the manufacturers, trade associations, and even the government, that we unconsciously purchase such supplies in conformity with standard specifications.

Purchases of meats and perishable commodities are all too often made haphazardly. Specifications may and should be established for this class of purchases. For instance, the beef for your particular conditions should be of a certain quality and only the cut best suited for your business should be considered.

Thus it has been found by experience the best meat is that of a young stall-fed and corn-fed steer, from twelve to twenty months old, which is specially bred and rationed for early development and is generally marketed at a weight ranging from 900 to 1,200 pounds. The meat should be of a fine, firm, and smooth texture, and bright, fresh, red color, intermixed with fine streaks of white fat. When pressed together with the fingers, it should retain the impression after removing them, as tough beef is elastic to the touch. Meat that is the color of pale or deep purple, or is wet and flabby, is not the best quality.

I shall not discuss the measures of quality, but shall illustrate specifications according to which certain high-class restaurants purchase prime ribs of beef, short loin, and racks of lamb.

Specifications for prime rib of beef:

1. Weight of prime rib.......................... 35 lbs. to 37 lbs.
2. Number of ribs.. 7
3. Length of rib from inside of backbone to end of rib on small end.. 10 to 10½ inches
4. Length of rib from inside of backbone to end of rib on large end.. 7½ to 8½ inches
5. To be cut from choice steer.
6. Skirt trimmed closely.
7. Fat on backbone to be trimmed off entirely.
8. Soft blade should show.
9. Should hang at least four weeks before delivery.

Specifications for short loin:

1. Weight of short loin.......................... 35 lbs. to 38 lbs.
2. Width of loin across top on large end................ 17 inches
3. Width of loin across top on small end................ 14 inches
4. To be cut on the hip not more than three inches from the hip bone.
5. To be cut from choice steers.
6. Should hang at least four weeks before delivery.

Specifications for rack of lamb:

1. Weight of rack of lamb (double rack)............... 5 lbs. 5 oz.
2. Number of ribs.. 8
3. Length of rib from inside of backbone to end of rib on small end.................................... 5 to 5¼ inches
4. Length of rib from inside of backbone to end of rib on large end.. 4½ inches

After illustrating how specifications may be prepared for purchasing purposes, I shall discuss the establishing of standards for the preparation of food, for which the following routine is suggested:

1. Obtain from authoritative sources, all recipes for all dishes now sold in the restaurant, and also for dishes found to be popular in other restaurants.
2. Test each recipe by cooking the dish as called for by the recipe.
3. Judge the various dishes and select the one most suitable for your particular conditions.
4. Provide that the recipe selected shall be the basis of the future and all similar dishes shall be exact counterparts of the test dish.

Before the recipes for ready-to-serve dishes are tested, it is, of course, necessary to adopt standard recipes for all important prepared ingredients used in cooking, such as soup stock, sauces, and pastes. Without first adopting a standard recipe for such prepared ingredients it would be impossible to standardize a great number of the ready-to-serve dishes.

The recipe accepted as standard should be reduced, as to quantities, to one, five, or ten portions, whichever is most practicable for the purpose. These recipes should be, for the convenience of filing, arranged in groups, assigning to each group a code as follows:

A—Soups
B—Seafood
C—Eggs
D—Sauces
E—Beef
F—Veal
G—Mutton
H—Lamb
I—Pork
J—Poultry
K—Game
M—Farinaceous
N—Salads
O—Doughs and pastes
P—Batters
Q—Creams and custards
R—Frostings and coatings

A form for a standard recipe should contain such information as cost, manner of service, besides the ingredients required and the process of preparation. When these recipes are in use in the kitchen, they should be adequately protected. For this purpose envelopes made from transparent celluloid sheets, with a leather frame on three sides and open on one side, should be provided.

At times it may be found necessary to illustrate the manner of serving by having a photograph taken of the dish accepted as the standard. Whenever such dish is on the menu, the photograph should be displayed in the kitchen, so that the cooks as well as the waiters may easily see it.

For those who desire to test the efficiency of the kitchen operation an opportunity is presented to compare the actual costs with the formula or recipe costs. Of course, whenever such tests are made it is necessary to recalculate the formula cost according to the current market prices of the commodities entering into the preparation of the dish.

The final step in a standardization program is the regulation of the size of the portions. The class of the restaurant and often traditions are important governing factors. It is an invariable rule that the portions which are most correct in size have been prepared from the best quality of food. It is obvious that a restaurateur could not exist if he continually serves an over-sized portion for the price received and does not cut on the quality. The attempt to serve over-sized portions of good quality at correspondingly high prices is, in my opinion, today driving many old-time restaurants out of business. Of course, I am speaking of average conditions and not isolated cases influenced by abnormal conditions either as to demand or as to operating expenses.

Standardization of the size of portions should begin with items which are served in units or in easily measurable quantities. If we have decided to purchase prunes "30-40" in size and to serve six to a portion, this standard should be strictly adhered to until such time that it is deemed necessary to change the standard. We should not, through carelessness, serve four or ten to a portion and neither should we purchase the "40-50" size occasionally.

If it is once determined that a pot of coffee consists of ten liquid ounces, a portion of exactly this size should always be served. If one and one-half liquid ounces of cream are established as the standard of service, precautions should be taken so that neither one-ounce nor two-ounce portions should leave the pantry. Either the cream-dispenser should be adjusted to pass only the correct quantity or preferably cream pitchers of the proper capacity purchased. The same principle of consistently following the standard should be applied to oranges, grapefruit, steaks, etc.

There is no special reason why four or five sizes of plates, from 5 3/4 to 10 inches, should be used. A careful study will prove that two sizes will do.

The same methods of standardization can be used in selecting sizes of bowls, platters, cups, pitchers, creamers, silver knives, forks, spoons, glasses, and other table ware.

In many cases, the selection of certain pieces of china and glassware determines the portion sizes. A larger dish than necessary may mean the loss of hundreds of dollars a year because it encourages employees to serve more than the selling price merits. Naturally, a standardized portion looks smaller on a large dish than on one that is smaller. An eight-ounce cup is large enough for coffee, tea, or cocoa service, and an eight-ounce glass for milk and water.

For the service of vegetables, soup, stewed fruits, ice cream, etc., it is necessary to have a standard size of ladle, spoon, or scoop. Foods such as prunes, figs, peaches, baked or boiled potatoes, radishes, olives, etc., must be served by count. Set a standard of a certain number of a certain size.

Standards for china purchases are largely the result of work among china manufacturers who realized the tremendous cost of selling too many sizes. Institutional buyers can still do a great deal more standardizing.

I know several buyers who have a cabinet of standards. Here they keep a sample of every product they purchase, such as china, glasses, silver, paper goods, cleaning compounds, soaps, brooms, mops, light bulbs, string, brushes, polishes, oils, condiments, containers, etc.

It is very important to have standards for purchase of brooms and brushes. In a large institution the expenditure for these products amounts to several thousand dollars a year.

Brooms are made in several sizes and in a variety of different qualities. It is first necessary to standardize on the size or sizes to be used and then the grade that serves the purpose. A cheap broom is never an economy. Light-weight brooms for homes are not practical for institutional use.

Institutions use the following different kinds of brushes:

Ceiling brushes
Counter brushes
Dusters
Floor brushes
Goblet brushes
Milk-bottle brushes
Paint brushes
Pastry brushes
Radiator brushes
Sanitary brushes
Scrubbing brushes
Sink brushes
Steel brushes
Stove brushes
Window brushes
Wire brushes
Whisk brooms

There are several kinds of mops and mop outfits. Some are self-wringing and some are a part of a cleaning unit. Each serves a specific purpose. Generally it is better to standardize on a wool-spun or special cotton-twine mop. It is not economical to use a handle from which the mop cannot be removed.

There is a broom, brush, or mop for every purpose. The right kind saves time and labor. In purchasing brooms and brushes it is necessary to keep in mind that bristles must be long wearing and firmly held to the base.

If a salesman can't sell the size and quality of standardized articles he need not waste time trying to sell scientific buyers. As a result it saves time for the buyer. In addition, there are other savings due to a lower investment in stock, less handling and breakage of china and glassware, fewer accounts to carry on the books, less time needed for inventories, less time needed for accounting, less spoilage of foods, and much less time required to educate employees how to use new cleaning compounds, polishes, etc. In every way, standardization means a distinct saving in time and money.

CHAPTER XXII

MAINTENANCE PROBLEMS

NEGLECT is an American vice. We find it in the care of the human body, in our homes, and in business. It is evident to some degree in every kitchen. As a result, equipment does not wear out. It rusts or deteriorates to the point of uselessness.

The day-by-day evidence of such neglect has caused me to do a little theorizing. I believe that a department of maintenance might be practical in institutional kitchens preparing 500 or more meals a day.

This department might include the dish-, silver-, and pot-washing functions. It might have complete charge of sanitation in kitchens, storerooms, bakery, butcher shop, and all working quarters. In detail the duties of this department might consist of:

1. The cleaning of all machines, equipment, floors, walls, ceilings, windows, ranges, ovens, ice boxes, urns, drains, sinks, etc.
2. Oiling of all machines.
3. Polishing of all brass, nickel, etc., in the "back of the house."
4. All insect extermination in the "back of the house."
5. Transportation of all waste and garbage to the proper place and handle its disposal.

With so many important functions centralized, the plan should be practical for even the small institution. Larger places can well afford to have a well-paid man as department head. He can easily save the amount of his entire salary.

Regardless of whether or not some such plan is adopted, there should be some one person responsible for the upkeep of machines so that repairs can be made before anything serious occurs. One of my friends uses a card file system, numbered from one to thirty-one. Under each number he files the cards listing the machines that must be cleaned, and other maintenance functions for that specific day. Each card gives minute instructions for each task. Even the new employee cannot fail when this system is employed.

The man in charge of maintenance should be equipped with a full set of tools, such as pipe wrenches, a blow torch, a magnet to pick up screws and nuts that drop into inaccessible corners, hammers, screw-drivers, files, etc.

Cooking Equipment. Inspect ranges once a week. Replace loosened bricks, warped tops, tighten connections, and clean burners. See that the stove is kept clean and well polished, and that hoods are kept free from grease that causes fires.

The electric ovens should be opened and inspected once every two months. Examine all elements and replace with new ones when necessary. The same examination is necessary for electric toasters, waffle irons, griddles, etc.

Coffee urns must be taken apart to clean out grease, lime, iron, or other mineral deposits. This is a weekly job. Valves should be tightened at the same time. If the faucet leaks but a few drops a minute, or if it drips after each operation, it should be replaced by a non-dripping faucet. This soon pays for itself.

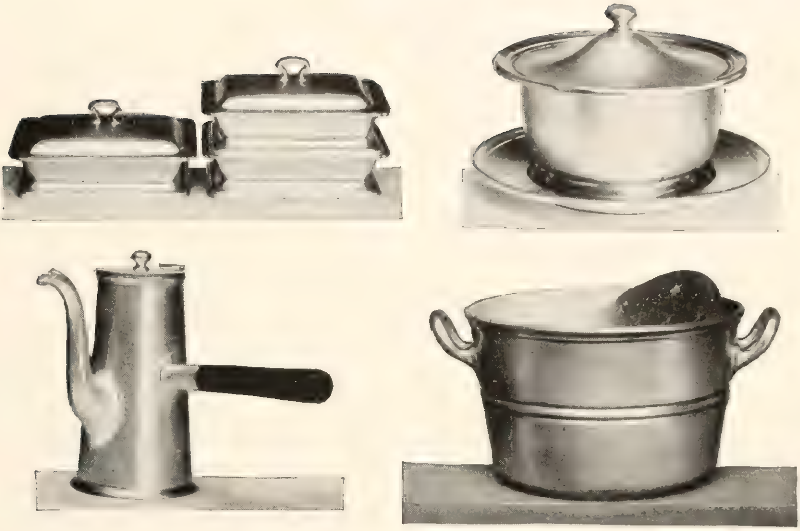
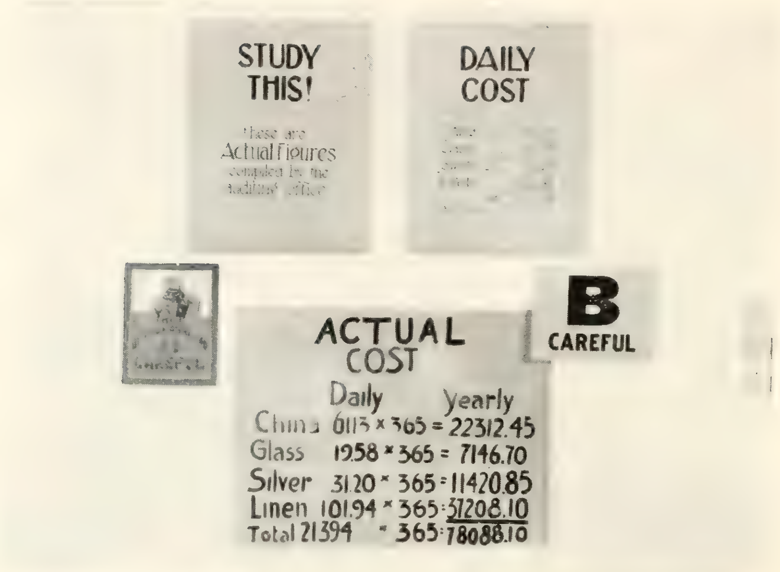


Plate 29. Splendid examples of simplicity of design in special pieces of hollow ware.



ACTUAL
COST

Daily yearly
China 6113 × 365 = 22312.45
Glass 19.58 × 365 = 7146.70
Silver 31.20 × 365 = 11420.85
Linen 101.94 × 365 = 37208.10
Total 21394 × 365 = 78088.10

Plate 30. Posters such as these distributed in the working quarters helped to reduce breakage materially.

Steam tables should be gone over each month. Connections must be tightened and bends or dents pounded out. Valves must be repacked when necessary. Small leaks often cause big losses. Steam cookers need the same attention to valves, connections, etc.

Refrigerators. Clean drain pipes weekly; ice chambers, doors, sills, etc., twice monthly; racks scrubbed weekly; frost removed before it becomes thick; storage chamber, walls, hooks, and doors, once a week. All cleaning should be done on regular days. Inspection of ice machines once a month; overhaul and rebuild it each year.

Ventilation Ducts. These should be painted with two coats of high-grade paint before they are installed. They should be repainted every two years.

Fatty particles must be cleaned from fan wheel, from the ducts, and from hoods. The motors should be inspected each week, with special attention to the brushes and commutators.

Kitchen Equipment. Inspect all copper utensils each month. Retin those that need it. The motors on mixers, slicers, choppers, and peelers must be examined each week and treated as other motors. The knives on slicers and choppers must be kept clean and sharp.

Dish- and Silver-Washers. These should be examined each week to be certain that all connections are tight; that the pipes are not lined with an accumulation of grease, lime, or iron; that motors are dry and in good condition. If soap-feeders are used, care should be taken to see that they feed freely. Silver cleaners must contain the proper amount of solution, connections must be tight and, like dish-washers, all bolts and screws must be tightened.

Other points of maintenance are:

See that steel or leather mats in front of ranges or dish-washing machines lie flat, and that edges do not turn up. Employees often stumble over upturned edges.

Be sure that fire extinguishers are fully charged and that the contents are replenished at proper intervals. All fire hoses must be given a test at least once every three months.

Dumbwaiters and conveyors must be oiled and adjusted at least once a month. These motors must also be oiled and tested.

Electric switches should be tested, door knobs tightened, hinges oiled and tightened, sash windows examined, and all drawers tested for ease of operation. All scales should be tested several times a year. It is exceedingly important to have correct weights.

Electric fans should be overhauled each year.

Loose floor or wall tiles should be cemented.

Truck wheels oiled and tightened. Rubber tires repaired.

Sinks and drains kept clear with chemicals or a plunger. If these are given a treatment each week, there should be no trouble from clogging.

Mop trucks and garbage cans should be examined. These often rust out from neglect.

This list is not complete, but it is indicative of what should be done to protect the investment. Equipment can be made to last twice as long if it is given the attention requested by the manufacturers. The few institutions that have worked out a plan for proper maintenance feel very well repaid. They agree that such efforts decrease costs, increase efficiency and prevent dangerous, costly, and annoying breakdowns in service.

CHAPTER XXIII

GRAFT—WASTE—THEFT—NOISE

Graft. Graft and corruption are twin evils that take their share of just profits. But they are no more prevalent in our business than in others. Wherever money or merchandise is being handled by human beings, there is certain to be dishonesty. It often seems as if people are divided into groups, one of which is trying to invent systems to prevent stealing, and the other to find ways to "beat" the systems.

I know chefs and stewards who are grafters. I have been in the inner office of a large meat company while chefs called for their checks. Fortunately this practice is becoming a thing of the past. The best companies refuse to pay for business, and the chefs' and stewards' associations fight the evil at every turn.

The best check on graft is an accurate accounting system that covers food control. Add to that a definite standard of quality for all food purchases. Prices seldom vary on like quality. It is on "outlaw" foods that graft is to be made.

At the Plaza Hotel in New York the chef knows just what the steward pays for all foods. He also knows the quality received, so there is a basis of comparison. More institutions are following this plan each day. If the chef is called upon to make certain food percentages, he should have a voice in the buying of those supplies.

Greatest Offenders. Beverage companies are the greatest offenders when it comes to "buying business." Many of them still follow the system because it was part of the selling plan used by every pre-prohibition beverage company.

Last year a new ginger-ale company consulted me about sales plans for the institutional market. After all details were settled the vice-president said, "And how much 'grease' must we add to those figures?"

"Ten thousand dollars for New York City," said the sales manager.

"Not a cent," I advised.

Regardless, they went after business on a graft basis. Today they are at the bottom of the sales ladder and the larger companies that depend on honest selling are still the leaders.

Graft Prevention. Graft can be reduced, and possibly prevented, by

(1) Purchasing standard merchandise and equipment of a specific quality. Prices do not vary greatly on these.

(2) Install an efficient food-cost accounting system.

(3) Check all incoming goods for quality, price, amount, and as to specifications.

(4) Put your buyers to a test. It is no more unethical to do this than to test your china or linen. The honest man never fears a test. Dishonest ones do. Have faith in employees when you know it is merited.

An Experiment. A friend of mine in the Middle West tried an interesting experiment, which proves that the buyer is not always to blame.

My friend needed a new steward. The salary was $3,600 and on this basis offered it to a man whom we both knew. He refused to take the position for less than $5,000 a year, with this proposition.

"I am not a grafter. Your past steward was. "I'll prove it by turning over all the graft to you (the manager was also proprietor) if you will pay me an honest man's wage."

The proprietor took him up on the proposition. At the end of three months the new steward had paid $2,600 over to the manager, and during that time he never asked for a cent of graft. The companies selling foods assumed that the new man was also a grafter.

A meeting was called at which all the graft-paying dealers were present. After the session all of them had agreed to new price schedules that were on a business basis—and the new steward received an increase in salary. Such cases as this show how difficult it is to handle the problem.

Waste. Some waste is justified. Where speed is one of the most important factors, it is often more economical to waste a little than to take time and effort to plug the leak. It is each manager's problem to work out his own solution.

The most important waste item is time. It cannot be redeemed and it has no secondary uses. It is gone forever. To prevent this loss you need an analysis of every position and its relationship to others. After this has been done, it will not be necessary to convince you of the necessity for standardization and employee manuals. Two separate chapters are devoted to these subjects.

Next comes the waste in cooking and serving food. Again standardization becomes necessary—standardized recipes and standardized portions. I have known of cases where such standards have reduced costs by 11 per cent. This subject is covered in greater detail in the chapter on "Standardization."

Spoilage. Other losses due to waste are:

> Spoilage due to improper refrigeration.
> Spoilage due to lack of knowledge regarding the use of left-overs.
> Preparing too much food.
> Using too much material in cleaning.
> Leaky faucets (water, milk, cream, coffee), lights left burning; gas or electricity not turned off after ranges and equipment have been used; suction fans left on; too much ice used; too much water used for washing and cleaning; and steam left on.

There are enormous losses due to waste in coffee, tea, cocoa, etc. Coffee should be made according to a standard—tea bags and cocoa portion envelopes are the most economical.

There is usually a great waste in the dish-washing department. Here, too, there should be standards; or better still, a machine that will automatically feed the right amount of soap into the washer. This is often the point of greatest waste.

Garbage. Do not overlook the garbage cans. This department should be laid out so that containers can be emptied on a platform. A block and tackle can be used to hoist cans on to a platform, if necessary. Nothing should go into the incinerator or be taken out until it has been raked over carefully.

Much silver will be recovered in this way. In some hotels, restaurants, and hospitals, a record is kept of the silver found in the garbage. If the figures run high, it is obvious that there has been undue carelessness.

Whether or not grease or garbage can be utilized is a local question. I have been employed in hotels that operated their own farms where the garbage was used for the hogs. In others, grease was sold to companies who manufacture cheap soaps. Still others grind bones, meat scraps, chicken bones, oyster shells, etc., for chicken food.

Waste Paper. Waste paper should not be burned. I have heard of two-hundred-room hotels that make a profit of fifty dollars a month on this waste. A baler is inexpensive and takes very little space in the basement.

Waste paper should be raked over carefully, first for valuable papers and personal belongings, and, second, for books and magazines which bring a higher price. Glass, tin cans, etc., should not go into the baler. The paper baler should be located in a room with steel doors. A fire extinguisher is an important part of the equipment.

Theft. "Stealing the boss blind" is a popular and profitable pastime for many employees. Many cooks keep the family kitchen supplied with choice meats from the kitchen. I know waiters who have beautiful silver in their homes (the hotel's). Some people will take anything that can be carried out. The management pays and pays and pays.

Small institutions cannot afford to keep a watchman at the back door. But many of them can arrange employee exits located where people can be watched more carefully than at present.

Naturally a good food-cost accounting system and foods issued only on order will reduce theft.

In larger institutions a watchman is essential. He should look over packages before they are taken out. The only exception is when an employee has a pass from a department head. Department heads should not be called upon to declare the contents of their packages.

Losses by theft are seldom very great in institutions using monogramed or engraved silver. Such silver cannot be sold and no one employee can use much of it. Nevertheless, it should not be given out in larger amounts than needed and a careful inventory should be made once a month. This gives an opportunity to check unusual losses.

Working tools, uniforms, etc., cannot be stolen if each person is responsible for a certain number of units and if new ones are issued only when the old one is turned in.

The steward's department should have a pass key for all employees' lockers, so that if the occasion arises a search can be made.

Each department head should be able to know pretty well what goes on in his department. There are usually actions by which an employee can be judged.

Noise. Kitchens like boiler shops, can never be made havens of rest. But I believe that within ten years noise will be reduced 50 per cent. This will come about when engineers do as much research in kitchens as they have done in factories. And a kitchen is a factory.

The time will come when all orders will flash on an electrical board, to remain on the board until the dish is completed. Ceilings will be higher and both walls and ceilings will be of sound-absorbing materials.

Even now trucks have rubber tires, rubber or composition mats are used on tables, kitchen employees use rubber heels, lights and buzzers are used instead of bells, and doors have cushions.

Scientific research proves that noise causes fatigue and nervousness and that it decreases efficiency. By adding to this the heat and poor lighting in a kitchen, it is easy to understand why most cooks are excitable, whether they are Americans or Europeans.

WHAT OTHERS SAY

"We materially reduced waste by offering a monthly cash bonus to each department that reduced costs. Cooks received 50 per cent of all they saved on fuel, dish-washers on their saving of cleaning supplies, etc."

JIM JOHNSON.

"We have regular days to issue cleaning materials to each department. If any one department uses five more pounds of soap one week than another, we call it to their attention. Carelessness which causes waste is usually due to lack of supervision."

JACK DARRICADES.

"Often the combined effort of the heads of the kitchen and dining room fail to eliminate shortcomings in either department. The chef should be located at the exit of the kitchen into the dining room in order to observe the orders and see that they are properly checked. If the storekeeper is held responsible for the goods in his department and the butcher for his meat, and if each is required to make a daily report of all that goes out of his department, then there can be no shortage. An ounce of prevention is worth a pound of cure."

CARL WAWRA.

"HOW THE CHEF AND STEWARD CAN SAVE ON FUEL

Chef

Gas ranges—shut off when not in use.
Coal ranges—use little as possible.
In starting fires—use waste wood, packing cases, etc., rather than charcoal.
Lights—shut off when not in use.
Motors—stop when not in use.

Refrigerators—keep doors closed tight.
Water, hot and cold—use as little as possible.
Kettles and other cooking apparatus—steam shut off when not in use.
Steam and water leaks—report at once to Engineer's Department.

Steward

Refrigerators—keep doors closed tight.
Steam and water leaks—report at once to Engineer's Department.
Ice—do not pull more than can be used at one time."

Stanley Barnaby.

"The proper handling of institutional waste depends on the careful organization of the institution, involving the full cooperation of the workers and careful study of each kind of waste. The spirit of waste prevails more in some hospitals than in others. Here we ask the question, 'Why?' This is because some hospitals lack the cooperation of the entire staff, the physicians, dietitians, supervisors, nurses, and nursing student body to make economy effective.

"How to minimize food waste is one of the hospital's largest problems. The division of the usable foods served and left-overs from the unusable ones, before returning supplies to the main kitchen, gives an opportunity to use the desirable left-overs and to discern what foods are less appreciated. The thing that prevents criticism and waste is to avoid repetition of the less popular and unappreciated foods in making menus and to serve foods that are of good quality, seasonable, that are well prepared, well seasoned, served attractively, not over-served and served at the proper temperature. The weighing of garbage affords one of the most effective methods of reducing waste to a minimum. After a careful sortage of food materials the dry garbage is weighed and a record is kept from day to day so that the desirability of the left-over foods in the daily menu can be estimated. The waste food that is salable can also be taken advantage of in a hospital such as the left-over bits of tallow, bones, meat fryings, and the like. In larger institutions this accumulation is especially noticeable, as the meats are bought in the whole carcass instead of select cuts. We estimate in our hospital a saving of fifty to sixty dollars per month with the sale of such left-over products.

"Perhaps the most concrete method of minimizing food waste is to have daily checking of supplies and constant teaching of those who render food service in order that they may give the highest degree of service and do it economically."

Margaret D. Marlowe.

CHAPTER XXIV

LAW IN THE KITCHEN

Law in the kitchen can be divided into six major classifications as it affects construction, ventilation, sanitation, protection, labor, and pure food.

There are national laws, state laws, and those enforced by the cities. Therefore it is necessary at all times to know the laws in your state regarding kitchens. New kitchens should never be built until all these laws have been studied. Otherwise it may result in expensive alterations.

Protection. Under this division come laws that specifically protect persons and property from injury or accidents. Many state laws demand that there be no open electric switches; that all fans, belts, gears, etc., be inclosed; that fire extinguishers and other fire safeguards be placed at advantageous points; that all knives and grinders on machines have suitable guards; that elevators have self-closing doors; and that all stairs and corners be well lighted. New York City has a law that demands the employment of a licensed engineer for a plant that generates over ten pounds of steam or where ice machines of thirty tons or over are in use. The latter is no doubt aimed to protect property and persons from explosions that might be caused by inexperience.

Ventilation. The special chapter on ventilation gives an idea of how important this subject is in modern institutions. The following laws from the State of Florida are but an indication of how this subject will eventually be covered by drastic laws in other states, compelling adequate ventilation.

Ventilation of Garbage Chutes. Where garbage chutes or conveyors or incinerators are used, they must be constructed so as to exclude from the building all odors arising from such garbage.

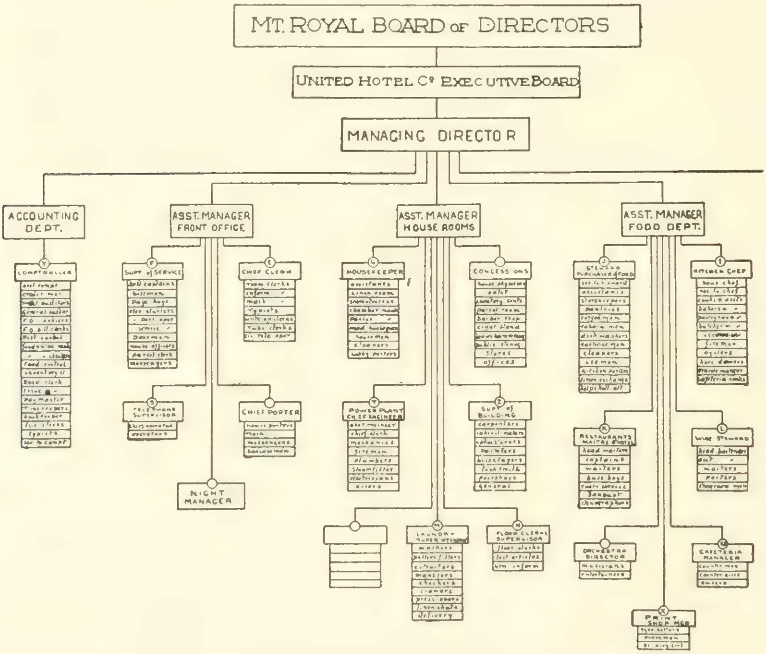


Fig. 50. An organization chart that shows the duties of an assistant manager in charge of the food department.

Ventilation of Water-closet Compartments. Water-closet compartments in or connected with any restaurant, dining room, or kitchen must not have any door or other opening connecting with or opening directly into any kitchen or dining room. All such openings must be to exterior of buildings, or into an intermediate compartment or vestibule, and the doors of both compartments shall be equipped with automatic self-closing hardware, and the water-closet compartment must have at least one window or other adequate ventilation to the exterior of the building.

Kitchen, Restaurants, etc., to be Ventilated. All kitchens, restaurants or dining rooms, storerooms, pantries, or other subdivisions shall be thoroughly ventilated either by a sufficient number of double-hung windows, the upper sash of which can be lowered and the lower sash of which can be raised, doors, transoms, or ventilators, or by such mechanical devices as the Hotel Commissioner may direct.

Fan Openings to be Screened. All openings to outside of building, used for ventilation fans, must be screened with wire basket screen of not less than sixteen meshes per inch. Basket screen to be clear of fan by one blade length. Screens to open perpendicular when fan starts, and close when fan stops.

Screen Doors to Open Outward and Close Automatically. Screen doors are to open outward only, to fit snugly, and to automatically close, and to remain closed at all times, day and night, except for entrance or egress.

Pure Food. All states have pure-food laws, but not all are as drastic as others. Most of them are patterned after the National Pure Food law passed in 1906. We are interested primarily in the rulings on adulteration.

> A food shall be deemed adulterated:
>
> First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.
>
> Second. If any substance has been substituted wholly or in part for the article.
>
> Third. If any valuable constituent of the article has been wholly or in part abstracted.
>
> Fourth. If it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health. *Provided*, That when in the preparation of food products for shipment they are preserved by an external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration, in water or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package, the provisions of this Act shall be construed as applying only when said products are ready for consumption.

Sixth. If it consists in whole or in part of a filthy, decomposed or putrid animal or vegetable substance, or any portion of an animal unfit for food whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter.

Sec. 8. That the term "misbranded," as used herein, shall apply to all drugs or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design or device regarding such article, or the ingredients or substances contained therein shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the State, Territory or country in which it is manufactured or produced.

A food shall be deemed misbranded:

First. If it be an imitation of or offered for sale under the distinctive name of another article.

Second. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package, or if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, cocaine, heroine, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilid, or any derivative or preparation of any such substances contained therein.

Third. If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure or numerical count. *Provided, however*, That reasonable variations shall be permitted, and tolerances and also exemptions as to small packages shall be established by rules and regulations made in accordance with the provisions of section three of this Act. That this Act shall take effect and be in force from and after its passage. *Provided, however*, That no penalty of fine, imprisonment or confiscation shall be enforced for any violation of its provisions as to domestic products prepared or foreign products imported prior to eighteen months after its passage.

Fourth. If the package containing it or its label shall bear any statement, design or device regarding the ingredients of the substances contained therein, which statement, design or device shall be false or misleading in any particular. *Provided*, That an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases:

First. In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced.

Second. In the case of articles labeled, branded or tagged, so as to plainly indicate that they are compounds or blends, and the word "compound," "imitation" or "blend," as the case may be, is plainly stated on the package in which it is offered for sale. *Provided*, That the term blend as used herein shall be construed to mean a mixture of like substances, not exceeding harmless coloring, or flavoring ingredients used for the purpose of coloring and flavoring only. *And provided further*, That nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredients to disclose their true formulas, except in so far as the provisions of this Act may require to secure freedom from adulteration or misbranding.

Some states have laws that prohibit the sale of certain game or fish, the use of chicory in coffee (unless the fact is made known on the menu or by placard), the use of imitation cheese, oleomargarine, or butter substitutes (unless this is also made known on the menu or by the use of placards).

New York City has a law that shell fish shall not be kept or sold without a permit except in cases where purchased from a dealer holding a permit from the Board of Health.

Also a law that milk shall not be kept or sold without a permit from the Board of Health except when contained in hermetically sealed cans.

Many cities have a drastic food-handlers law that prohibits the employment of people, for the handling of food, who have an infectious disease or who have no certificate of medical inspection. This is an excellent law and progressive managers or associations should encourage a similar law in every state.

Construction. The following laws from the Florida statutes are indicative of how essential it is to keep within the law, beginning with the kitchen when it is still on paper:

> **Dimensions and Proportions.** Every kitchen shall be of such dimensions and proportions as to permit the proper installation and arrangement of all parts of the equipment and appliances in a convenient and sanitary manner.
>
> **Minimum Floor Area.** The minimum permissible floor area of any such kitchen exclusive of storerooms, refrigerating rooms, and toilet rooms shall be equal to 15 per cent of the total floor area of the rooms or other spaces devoted to restaurant or dining-room purposes.
>
> **Hood Required.** Where the apparatus or the adjacently located apparatus contains more than two fire-pots or where they have a combined area of top surface of more than fifteen square feet, a hood of incombustible material shall be provided over the entire area of the apparatus or apparatuses, and said hood shall be connected with suitable means of ventilation extending to the outside of the building, and the ventilating stack shall be of in-

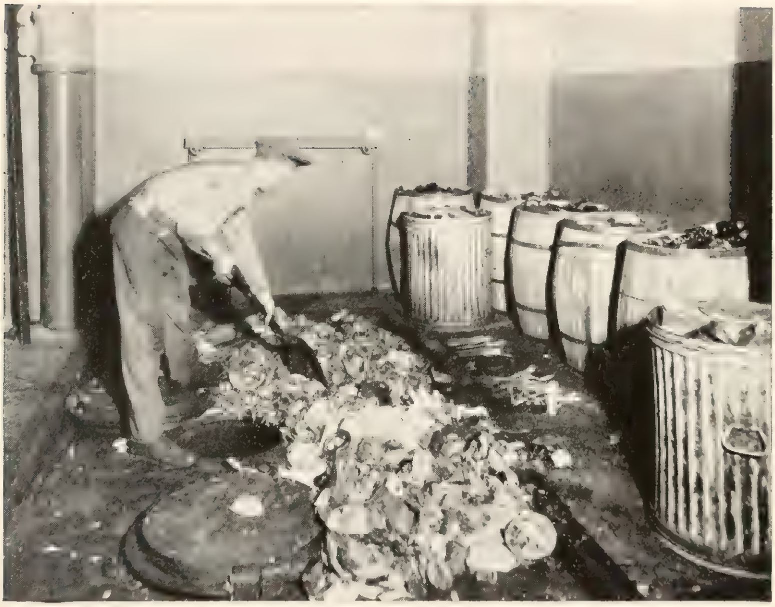


Plate 31. One day's salvage from the garbage before it is put in the incinerator.

Plate 32. All containers should be marked with the name of products which they hold. This saves a great deal of time.

combustible material and shall not be within eighteen inches of any door or window and shall extend upward to not less than two feet above the top of any door or window located within ten feet of any part of said stack.

National Electrical Code. In all buildings, the detailed requirements for the method of installing electrical work and apparatus shall be the same as provided in the National Electrical Code, regulations of the National Board of Fire Underwriters for electric wiring and apparatus, as recommended by the National Fire Protection Association. The latest edition of the above rules shall be taken at all times as authority for determining questions arising as to details for electrical work or apparatus, except as otherwise provided in these regulations.

Cabinets. In all buildings all switches and cutouts shall be installed in a box or cabinet with a steel or slate lining or lined with a hard insulating and fireproof material. Asbestos-lined wood cabinets are prohibited.

Walls and Ceilings. All new kitchens and subdivisions thereof, or old buildings to be altered or remodeled for use as kitchens or dining rooms, or subdivisions thereof, shall have hard plaster walls and ceilings on masonry, concrete, or metal lath. Plaster to have enameled finish.

Chimneys. The walls of chimneys used for stoves, ranges, fireplaces, heating furnaces, or other heating appliances, whether the fuel used be wood, coal, oil, or gas, shall be built of brick, concrete, stone, or hollow tile, of such thickness and construction as hereafter specified.

Solid brick or concrete chimney walls shall be not less than four inches thick, exclusive of flue lining. A standard-size brick laid flatwise shall be deemed to fulfill this requirement for brick. Bricks set on edge are prohibited in chimney construction.

All chimneys which are lined with fire brick shall have masonry walls not less than eight inches thick, including fire brick properly bonded.

Hoods for Ranges. All wood-lath and plaster, or wood ceilings, over large ranges, and all ranges in hotels and restaurants, shall be guarded by metal hoods placed at least nine inches below any combustible ceiling. A ventilated pipe connected with the hood shall be placed not less than nine inches from all wood-lath and plaster or woodwork and shall connect directly to a masonry flue or vent. The pipe shall be not less than thirty inches sectional area and be covered by at least one inch of asbestos covering or its equivalent.

Flue Connection. All ranges shall have either smoke or gas vent connections leading directly to a masonry flue or chimney.

Wall Shields for Stoves and Ranges. No kitchen range or stove in any building shall be placed less than three feet from any woodwork or wood-lath and plaster partition, unless the woodwork or partition is properly protected by metal shield, in which case the distance shall be not less than eighteen inches. Metal shields shall be so attached as to preserve an air space behind them.

Bake Ovens. All bake ovens shall be placed on proper foundations, and all wood and combustible partitions near such ovens shall be protected as shall be deemed necessary by the supervising architect for the particular type of oven used.

Gas Brackets. All gas burners shall be placed at least twenty-eight inches below any ceiling or woodwork unless the same is properly protected by a shield, in which case the distance shall be not less than eighteen inches. No gas burner shall be placed nearer than eight inches to any window opening, and all swinging or folding gas brackets shall be provided with stops to prevent them from swinging nearer than six inches to walls or woodwork.

Cleaning of Surfaces. Tops of tables or other surfaces, on which food is prepared or placed, shall be scraped, or cleaned with a steel brush, and scalded and thoroughly sterilized each day.

Construction of Tables. Table tops shall be of hard wood or cypress closely fitted, and edge boards only shall be fastened down to frame. Other boards to be loose to permit removal and thorough cleaning which must be done each day.

Sanitation. This is the age of sanitation. It is evident at every turn. We see it especially in food stores, butcher shops, food factories, and in the modern home kitchen. Institutions have been backward. As a result laws have been passed which demand the things which good management should have initiated.

In many states the roller towel is prohibited, dishes must be sterilized, and dressing rooms and washrooms must be provided for each sex. Here again Florida leads with much constructive legislation. As an example:

Storage of Foods. All places and receptacles where prepared food, or food served in its raw state, is kept or stored, must be roach, mouse, and rat proof, and be thoroughly screened against flies and other insects and vermin.

Decayed Foods. Decayed, contaminated, or unwholesome meats, vegetables, or other food products shall not be served in any restaurant, nor shall they be stored on the premises.

Foods in Metal Containers. The contents of any metal can or container must, immediately after opening, be emptied into an earthenware or glass receptable. No cooked or raw meats, no milk, nor any other food through which intestinal infections might be transmitted, shall be placed on or left in contact with any metal.

Tinware Prohibited. All food containers or kitchen pans, used for storing or preserving prepared or raw food, shall be of earthenware or white enamel, or aluminum. The use of tinware is absolutely prohibited.

Purity of Water. All water for drinking and culinary purposes shall be free from contamination, and conform to U. S. Treasury Department standards.

Ice. The use of contaminated or impure ice in drinks, or for cooling of food by direct contact is prohibited.

Handling of Ice. The handling of cracked ice, with the hands, for tea, iced water, and other iced drinks and food is prohibited.

Drinking Glasses. No dirty, used, or unsterilized glasses shall be left or kept or allowed to be kept in any dining room around or near to any cooler, fountain, or water supply, but must be immediately removed and washed and sterilized, after use, before being used again. Where public coolers or drinking places are maintained, individual sanitary drinking cups must be furnished free of charge. Common drinking cups or glass are forbidden, and nonperforated metal containers shall be provided for used paper drinking cups.

Garbage. All garbage and kitchen refuse and scraps, trash, waste, and dirt must be kept in watertight metal cans provided with close fitting metal covers, and contents must be removed daily.

Health Certificate. No owner, nor agent, nor manager, nor any other person owning or operating any hotel, apartment house, rooming house, or restaurant shall employ, retain or continue in his employment, any employee who cannot show a certificate of examination, signed by a licensed physician or family practitioner, issued on a date within the preceding 180 days and declaring said employee to be free from contagious or communicable disease. The foregoing requirements shall be applicable to every owner, manager, or other person who performs any or all of the services usually performed by the employees.

Communicable Diseases. The State Board of Health declares the following as communicable diseases: Asiatic cholera (cholerine), yellow fever, smallpox, typhus fever, leprosy, bubonic plague, diphtheria, scarlet fever (scarlatina), typhoid fever, measles (including rotheln), whooping cough, cerebro-spinal meningitis, acute anterior poliomyelitis, opthalmia neonatorum, gonorrhœa, syphilis, tuberculosis, and other communicable diseases.

Typhoid Carriers. Any person who has been afflicted with typhoid fever within three years shall not perform any work nor be employed in any dining room or kitchen of any restaurant, pantry, storeroom, nor for dish washing nor cleaning, until it has been definitely determined, by a licensed physician, that such person is not a typhoid carrier.

Restaurant Toilet Rooms. Each restaurant shall have one toilet room for each sex, properly designated, containing at least one water closet and one lavatory in each toilet room.

Grease Traps. Each hotel, rooming house, restaurant, or public eating-house shall have a grease trap not less than twenty-four inches in diameter and thirty-six inches deep.

Water Closets and Connections. Water closets shall be of vitreous china siphon jet or siphon washdown. No water closets shall be placed more than three feet horizontal and one and a half feet vertical from a vent. An approved stop cock or valve shall be placed above the floor on every closet supply. No water closet shall be used except those of such makes as have the trap above the floor. For each closet connection a floor flange suitable for the kind of floor and subject to approval of supervising architect, shall be soldered to the lead pipe where it comes through the floor, which brass plate must be screwed to the floor, and the said closet securely bolted to the plate with an approved joint compound between flanges.

Waste from Refrigerators. Waste pipes from refrigerators or other receptacles in which provisions or food are stored shall not be directly connected with the sewer, but shall discharge into an open sink or other suitable fixture properly connected with the sewer.

Waste from Soda Fountains, etc. The waste pipes from bar sinks, soda fountains, ice boxes, or drinking fountains may be emptied into a catch basin or slop sink placed in the floor close to the fixtures, provided that the catch basin or slop sink used shall be of such make as can be calked on to the trap and the trap calked into the sewer, and no waste pipe is put in over five feet in length between the catch basin and the fixture, said waste pipe to be trapped. Wherever it is practicable, the catch basin may be constructed of concrete, as the Hotel Commissioner may direct.

Places Offering Food for Sale. No hotel, restaurant, person, firm, nor corporation shall keep, store, sell, offer for sale, or serve any food for consumption in the raw state, or which may be consumed without further cooking, which has been kept or stored in or at any meat shop, butcher shop, market, grocery store, fruit stand, or any other place where food is exposed for sale, without having such food securely screened by wire netting—with mesh sufficiently close to prevent the admission of flies—not less than sixteen mesh in any case.

Screening. All windows, doors, and other openings to the outside of the building, and all windows and transoms opening into corridors, must be screened full size of opening with not less than sixteen-mesh wire screen.

Washing Facilities. Every kitchen must be equipped with a suitable washroom or wash basin, soap, clean water, and towels. All employees who in any way handle or come in contact with the foods to be prepared or served must, before beginning work, and after using water closets or urinals, and at all other times when necessary, wash their hands with clean water and soap.

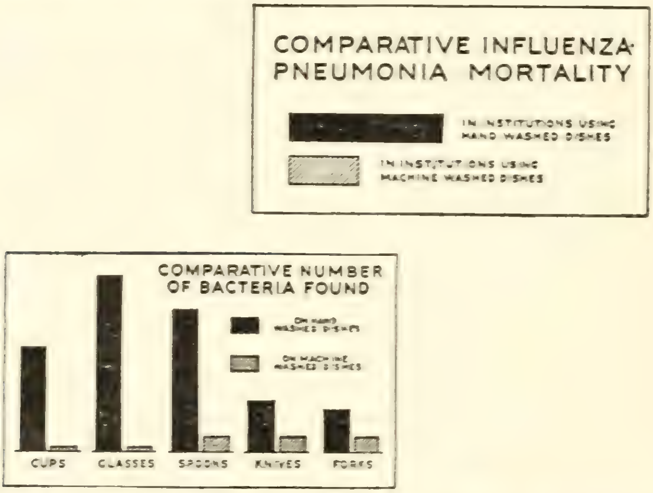


Fig. 51. A striking example of the difference between hand and machine washing.

Labor. Kitchen employees of today do not realize how great have been the changes in working conditions during the past fifteen years. And many more changes must take place if unionism is to be kept out. Most of the laws at present are for the protection of women and children. Several states have minimum-wage laws; others prohibit the employment of child labor from

6 P.M. to 8 A.M. or over nine hours a day. New York prohibits the employment of children under sixteen years of age, and females in kitchens located in basements, unless a permit has been granted by the commissioner. He grants this if the basement is well lighted and ventilated and kept in a sanitary condition. In New York women cannot be employed after 10 P.M. and before 6 A.M.

All employees must be paid weekly. They must be given at least forty-five minutes for all meals except midnight lunch, when twenty minutes is allowed.

California Laws. The labor laws of California provide that:

> No female shall be employed in any manufacturing, mechanical or mercantile establishment, laundry, hotel, public lodging-house, apartment house, hospital, place of amusement, or restaurant, or telegraph or telephone establishment or office, or in the operation of elevators in office buildings or by any express or transportation company in this state more than eight hours during any one day of twenty-four hours or more than forty-eight hours in one week. It shall be unlawful for any employer of labor to employ, cause to be employed or permit any female employee to labor any number of hours whatever, with knowledge that such female has heretofore been employed within the same date and day of twenty-four hours in any establishment and by any previous employer, for a period of time that will, combined with the period of time of employment by a previous employer, exceed eight hours; provided, that this shall not prevent the employment of any female in more than one establishment where the total number of hours worked by said employee does not exceed eight hours in any one day of twenty-four hours. If any female shall be employed in more than one such place, the total number of hours of such employment shall not exceed eight hours during any one day of twenty-four hours or forty-eight hours in one week. The hours of work may be so arranged as to permit the employment of females at any time so that they shall not work more than eight hours during the twenty-four hours of one day, or forty-eight hours during any one week; provided, further, that the provisions of this section in relation to hours of employment shall not apply to or affect graduate nurses in hospitals, nor the harvesting, curing, canning or drying of any variety of perishable fruit, fish or vegetable during such periods as may be neces-

sary to harvest, cure, can or dry said fruit, fish or vegetable in order to save the same from spoiling.

Sec. 2. Every employer in any manufacturing, mechanical or mercantile establishment, laundry, hotel, or restaurant, or other establishments employing any female, shall provide suitable seats for all female employees, and shall permit them to use such seats when they are not engaged in the active duties of their employment.

Sec. 3. The bureau of labor statistics shall enforce the provisions of this act. The commissioner, his deputies and agents, shall have all powers and authority of sheriffs and other peace officers, to make arrests for violations of the provisions of this act, and to serve all processes and notices thereunder throughout the state.

Sec. 4. Any employer who shall permit or require any female to work in any of the places mentioned in Section 1 more than the number of hours provided for in this act during any day of twenty-four hours, or who shall fail, neglect, or refuse to so arrange the work of females in his employ so that they shall not work more than the number of hours provided for in this act during any day of twenty-four hours, or who shall fail, neglect, or refuse to provide suitable seats as provided in Section 2 of this act, or who shall permit or suffer any overseer, superintendent, foreman, or other agent of any such employer to violate any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished for a first offense, by a fine of not less than twenty-five dollars nor more than fifty dollars; for a second offense, by a fine of not less than one hundred dollars nor more than two hundred and fifty dollars; or by imprisonment for not more than sixty days, or by both such fine and imprisonment. All fines imposed and collected under the provisions of this act shall be paid into the state treasury and credited to the contingent fund of the bureau of labor statistics.

Michigan Laws. The Labor Laws of Michigan regulate the employment of women and children in hotels, forbidding the employment of a child under fifteen years of age in any hotel, but not applying "to any child of the age of fourteen years or over, working Saturdays or other days during the school year, outside of school hours." Also every hotel is required "to keep a register in which will be recorded the name, birthplace, age, and place of residence of every person employed under the age of sixteen years" and to place on file in its office "a permit issued by the superintendent of schools" or other authorized official. Also "No male under the age of eighteen years and no female shall be employed, permitted, or suffered to work in any hotel . . . for a period longer than an average of nine hours a day, or fifty-five hours in any week, nor more than ten hours in any one day; and all such establishments shall keep posted a copy of this section, printed in large type, in a conspicuous place. In establishments having a time clock, such copy shall be posted near the time clock." Although it cannot be classed among the hotel laws, the Workmen's Compensation Act affects the operations of every hotel in the state. This law was enacted in 1913, being adopted largely from the English and Scotch acts on the same subject. The purpose is to provide compensation for accidental injuries, and is based upon the theory that the industry which occasions such injury should as part of the cost of production bear the burden of compensation for the same.

Each city and state has its own rulings. All of them must be studied and be taken into consideration. The law that may be a dead letter today may be revived tomorrow. So, be prepared for the worst by doing the best.

CHAPTER XXV

PRINCIPLES OF SCIENTIFIC FOOD-PURCHASING

> "I REALIZE that I am very much indebted to salesmen. I frankly admit that half of my buying knowledge has been acquired from the men who sell to me. I know that each is a specialist in his line, and when I find that he is honest with me, I place confidence in what he tells me.
>
> "These men know the market conditions in their respective industries. By being friendly with them, I am often able to learn things that enable me to buy quality goods at inside prices. If I were not friendly with the salesmen, I would not be given these opportunities and the hotel would lose money as a result."
>
> A FAMOUS STEWARD.

And where did the salesmen get their knowledge? They picked it up. So did their teachers, and all the best buyers of today. There is no other way available. As a result there is always a shortage of men who *know* how to buy scientifically.

To purchase scientifically the buyer must know:

1. *About the organization*
    - a. How much food is needed
    - b. How it is to be used
    - c. When it is to be served
    - d. Clientele or consumer
    - e. Quality desired

2. *About the products*
    - a. How they are packed
    - b. Competitive prices
    - c. Best brands and sizes for his purpose
    - d. Standards of quality
    - e. Standards of weight, measure, and grading
    - f. Possible price of futures due to supply

   g. When foods are in season
   h. Substitutes—prices, suitability

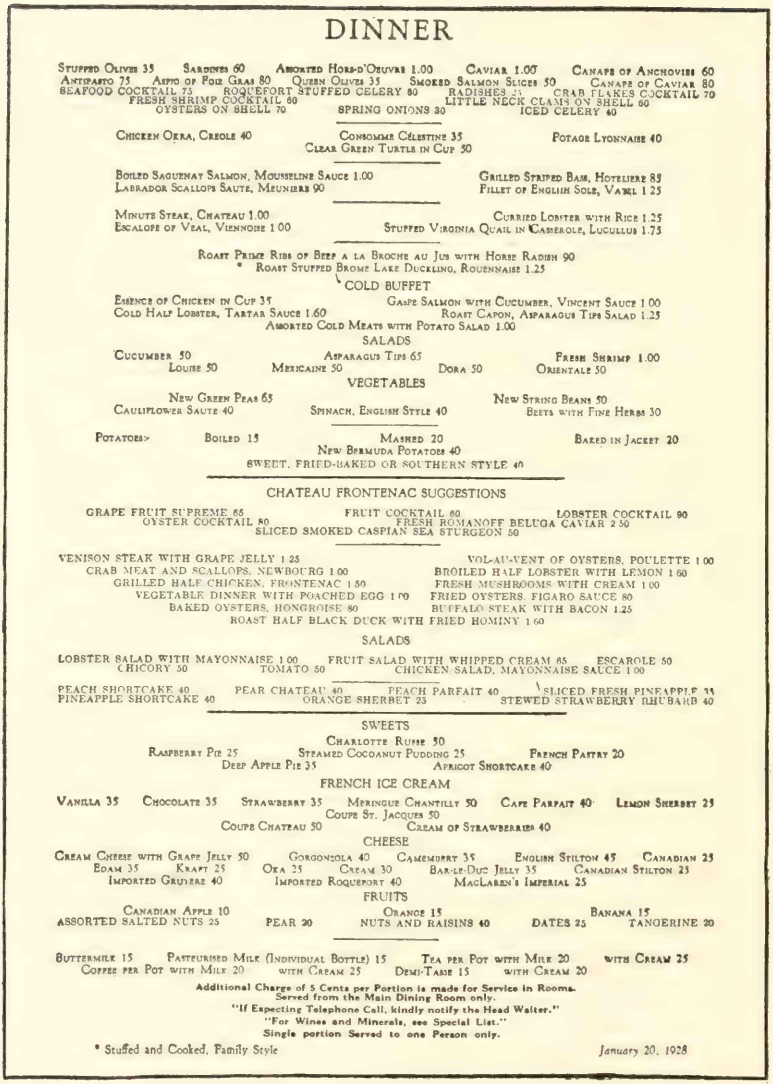
3. *About the markets*
   a. Where the best of each is grown or packed
   b. Delivery and storage conditions
   c. Price range in each market

Organization. The efficient buyer knows his organization—the capabilities of the cooks and the methods of food service. He must cooperate with the chef and the head waiter so that he can tell at all times what they are planning. If he knows the number of people to be served and what kind of food they like and will pay for, he can buy accordingly. The hotel steward knows that all convention or banquet crowds cannot be fed alike. Nationality, age, sex, occupation, and the locality from which they come, all enter into the complex problem of pleasing mass palates.

He should also know how the food is to be used—an excellent argument in favor of those who advocate that the steward have something to do with making the menu. The capable steward knows that certain foods, to be most palatable, must be served hot off the stove. If this service is impossible, he will buy foods that do not lose so much in cooling slightly or standing a while.

Then, too, he must study weather conditions and seasons because he knows that people want different foods on days that are warm, or in the summer, than on cool days, or in the winter. The menu-maker who overlooks the influence of weather conditions is certain to pay for his ignorance.

It is difficult for the steward or the chef to know much about the people to be served. He must depend on the manager, head waiter, or maitre d'hôtel for this information. The institutional buyer has none of these wor-



DINNER

Stuffed Olives 35 Sardines 60 Assorted Hors-d'Oeuvre 1.00 Caviar 1.00 Canape of Anchovies 60
Antipasto 75 Aspic of Foie Gras 80 Queen Olives 35 Smoked Salmon Slices 50 Canape of Caviar 80
SEAFOOD COCKTAIL 75 ROQUEFORT STUFFED CELERY 60 RADISHES 25 CRAB FLAKES COCKTAIL 70
FRESH SHRIMP COCKTAIL 60 LITTLE NECK CLAMS ON SHELL 60
OYSTERS ON SHELL 70 SPRING ONIONS 30 ICED CELERY 40

Chicken Okra, Creole 40 Consomme Célestine 35 Potage Lyonnaise 40
Clear Green Turtle in Cup 50

Boiled Saguenay Salmon, Mousseline Sauce 1.00 Grilled Striped Bass, Hoteliere 85
Labrador Scallops Saute, Meuniere 90 Fillet of English Sole, Vatel 1 25

Minute Steak, Chateau 1.00 Curried Lobster with Rice 1.25
Escalope of Veal, Viennoise 1 00 Stuffed Virginia Quail in Casserole, Lucullus 1.75

Roast Prime Ribs of Beef a la Broche au Jus with Horse Radish 90
* Roast Stuffed Brome Lake Duckling, Rouennaise 1.25

COLD BUFFET

Essence of Chicken in Cup 35 Gaspe Salmon with Cucumber, Vincent Sauce 1 00
Cold Half Lobster, Tartar Sauce 1.60 Roast Capon, Asparagus Tips Salad 1.25
Assorted Cold Meats with Potato Salad 1.00

SALADS

Cucumber 50 Asparagus Tips 65 Fresh Shrimp 1.00
Louise 50 Mexicaine 50 Dora 50 Orientale 50

VEGETABLES

New Green Peas 65 New String Beans 50
Cauliflower Saute 40 Spinach, English Style 40 Beets with Fine Herbs 30

Potatoes:- Boiled 15 Mashed 20 Baked in Jacket 20
New Bermuda Potatoes 40
SWEET, FRIED-BAKED OR SOUTHERN STYLE 40

CHATEAU FRONTENAC SUGGESTIONS

GRAPE FRUIT SUPREME 65 FRUIT COCKTAIL 60 LOBSTER COCKTAIL 90
OYSTER COCKTAIL 80 FRESH ROMANOFF BELUGA CAVIAR 2 50
SLICED SMOKED CASPIAN SEA STURGEON 50

VENISON STEAK WITH GRAPE JELLY 1 25 VOL-AU-VENT OF OYSTERS, POULETTE 1 00
CRAB MEAT AND SCALLOPS, NEWBOURG 1 00 BROILED HALF LOBSTER WITH LEMON 1 60
GRILLED HALF CHICKEN, FRONTENAC 1 50 FRESH MUSHROOMS WITH CREAM 1 00
VEGETABLE DINNER WITH POACHED EGG 1 00 FRIED OYSTERS, FIGARO SAUCE 80
BAKED OYSTERS, HONGROISE 80 BUFFALO STEAK WITH BACON 1.25
ROAST HALF BLACK DUCK WITH FRIED HOMINY 1 60

SALADS

LOBSTER SALAD WITH MAYONNAISE 1 00 FRUIT SALAD WITH WHIPPED CREAM 65 ESCAROLE 50
CHICORY 50 TOMATO 50 CHICKEN SALAD, MAYONNAISE SAUCE 1 00

PEACH SHORTCAKE 40 PEAR CHATEAU 40 PEACH PARFAIT 40 SLICED FRESH PINEAPPLE 35
PINEAPPLE SHORTCAKE 40 ORANGE SHERBET 25 STEWED STRAWBERRY RHUBARB 40

SWEETS

Charlotte Russe 50
Raspberry Pie 25 Steamed Cocoanut Pudding 25 French Pastry 20
Deep Apple Pie 35 Apricot Shortcake 40

FRENCH ICE CREAM

Vanilla 35 Chocolate 35 Strawberry 35 Meringue Chantilly 50 Cafe Parfait 40 Lemon Sherbet 25
Coupe St. Jacques 50
Coupe Chateau 50 Cream of Strawberries 40

CHEESE

Cream Cheese with Grape Jelly 50 Gorgonzola 40 Camembert 35 English Stilton 45 Canadian 25
Edam 35 Kraft 25 Oka 25 Cream 30 Bar-le-Duc Jelly 35 Canadian Stilton 25
Imported Gruyere 40 Imported Roquefort 40 MacLaren's Imperial 25

FRUITS

Canadian Apple 10 Orange 15 Banana 15
ASSORTED SALTED NUTS 25 PEAR 20 NUTS AND RAISINS 40 DATES 25 TANGERINE 20

Buttermilk 15 Pasteurised Milk (Individual Bottle) 15 Tea per Pot with Milk 20 with Cream 25
Coffee per Pot with Milk 20 with Cream 25 Demi-Tasse 15 with Cream 20

Additional Charge of 5 Cents per Portion is made for Service in Rooms.
Served from the Main Dining Room only.
"If Expecting Telephone Call, kindly notify the Head Waiter."
"For Wines and Minerals, see Special List."
Single portion Served to one Person only.

* Stuffed and Cooked, Family Style *January 20, 1928*

Fig. 52. A la carte menu from the Chateau Frontenac in Quebec.

ries. He buys practically the same limited foods of the same quality, year in and year out.

Products. The buyer who knows the most about the foods he is buying is almost certain to be the best buyer. His knowledge of brands, their service and evolution on the way to market, gives him a keen sense of values.

Oranges. Such buyers usually know the sizes, weights, standards, and packs of all foods. They know that out of the ten sizes of oranges, certain sizes are more economical for certain uses. The largest oranges are packed 80 to a box. Other sizes are packed in the following numbers per box: 100, 126, 150, 176, 200, 216, 252, 288, and 324. Efficient buyers compare costs on the basis of what a box of a specific size of fruit will return in revenue.

Lemons. Lemons are packed in seven sizes, 240, 270, 300, 360, 420, 442, and 490 a box. Each size has its advantages, and the food buyer should know what they are.

Grapefruit. These come in sizes with the following number per box: 96, 80, 70, 64, 54, 46, and 36—a size for every demand, whether they are to be sold at 10 cents or 25 cents a portion.

Bananas. Bunches weigh from 40 to 100 pounds. This is one of the neglected fruits that can be made into numerous profitable dishes.

Apples. The most popular are the Jonathans and Delicious for eating and the Roman Beauty for baking. They are packed in bushel boxes holding from 48 to 216.

These are but a few of the many fruits that go to make up the menu. Each size and quality has a place in institutional food service.

Fish. There are about 181 varieties of fish on the American market (see booklet by United States Fisheries Association, New York City). Some are high in price; others low. One thing is certain—people should eat more fish.

Points to be considered in buying fish:

1. Odor is probably the surest guide. A fish with a strong odor should be avoided.
2. Look at the gills. In a fresh fish they should be red as fresh blood. When they are darker, the fish is not fresh, and when they become pale the fish is too old for use.
3. The eyes should be shiny, not gray and dull.
4. The flesh should be firm, not flabby. This is not so good a guide as others because some fish retain their hard flesh even though they have been kept too long, and others have a softer flesh even when freshly caught.
5. The best advice to the inexperienced buyer is to choose a reliable dealer and let him help in fish selection. Knowing good fish is a difficult matter for the novice.

Meat. It is more difficult to buy meat efficiently than any other food product, not only because it is the largest single item in many institutions, but because it can be made up into more dishes than any one chef can remember or even learn to make.

To purchase economically the buyer should know every cut of meat and the various ways in which it can be prepared into palatable dishes. There are hundreds of tasty dishes that can be made from low-priced meat cuts. The reason they are low-priced is that they are

Plate 33. The clear water with the heavy suds is from softened water. The other sample is of water that has not been softened. This is an excellent example of the saving in soap when water is soft.

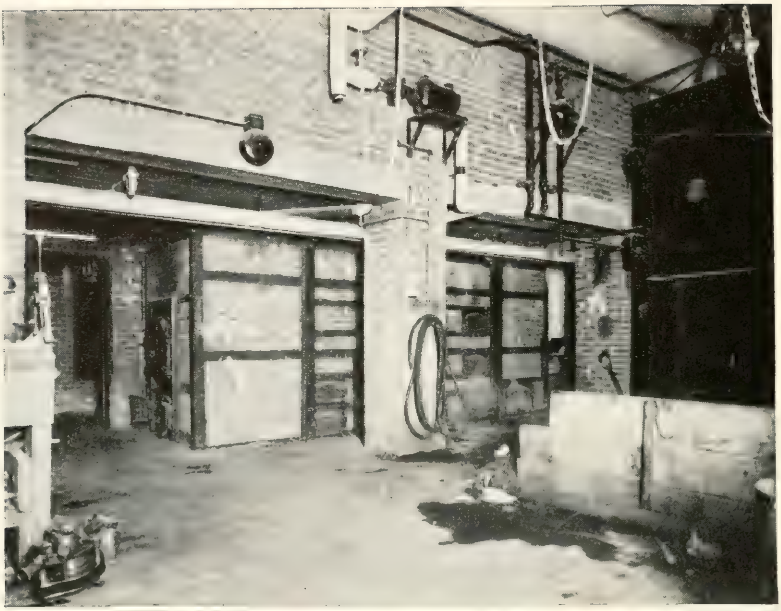


Plate 34. An incinerator is a part of every modern institution of any size.

not in demand. There is no demand because cooks do not know how to prepare these cuts. And these low-priced cuts are nutritious, often more so than the more expensive parts.

In this chapter I cannot cover all the points to be considered in buying meats. This is a subject worthy of a book. The principle points to be considered are:

Beef. The flesh should be cherry red. It should be firm and well mottled or "marbled" with fat. The fat should be yellowish (straw-colored) and firm.

A LARGE CHAIN HOTEL COMPANY
SIMPLIFIED ITS REQUIREMENTS, AND REDUCED COSTS, OF
ITEMS SIMPLIFIED, 20 PER CENT BELOW FORMER
COST, RELEASED $350,000 FROM FORMER INVENTORIES, AND SAVED $100,000 PER YEAR

HOW?

BY REDUCING
30 STYLES OF GLASSWARE TO 10
15 DESIGNS OF CARPETS TO 3
MANY PATTERNS OF TABLE LINEN TO 1
AND SIMILARLY SIMPLIFYING NEARLY 200 OTHER
SUPPLY ITEMS

FROM STATEMENT BY L. M. BOOMER, PRESIDENT WALDORF-ASTORIA, INC.

Fig. 53. The value of standardization.

Veal. Calf carcasses weighing less than 300 pounds are classed as veal. Veal is almost white in color, with a definite pinkish tinge. The flesh is not so firm as that of beef. The fat is pinkish white and firm.

Lamb and Mutton. Mutton is a dull brick-red color and the lean portion is firm and fine grained. The fat is white and hard and flaky, and is well distributed through the lean meat.

Lamb is young mutton. The flesh of a very young lamb is light pink and deepens in color as the animals grow older.

Pork. Pork should be fine grained and firm to the touch. The lean meat or muscle of pork, when from a young animal, is nearly white, and that from an older animal is rose color. The fat should be liberally distributed throughout the lean. The well-fattened hog gives the best flavored pork.

Poultry. In its broadest meaning, poultry can be classified as follows:

Squab chicken	1½ pounds
Broiling chicken	1½–1¾ pounds
Frying chicken	2½–3½ "
Roasting chicken	3½–4 "
Fowl	3½–6 "

Stag
Rooster
Turkey
Duck
Goose

Canned Goods. There are standards of quality as well as size in canned goods. (See Appendix L for list of net weights.) Standards established by the National Canners Association and state associations of canners are generally as follows:

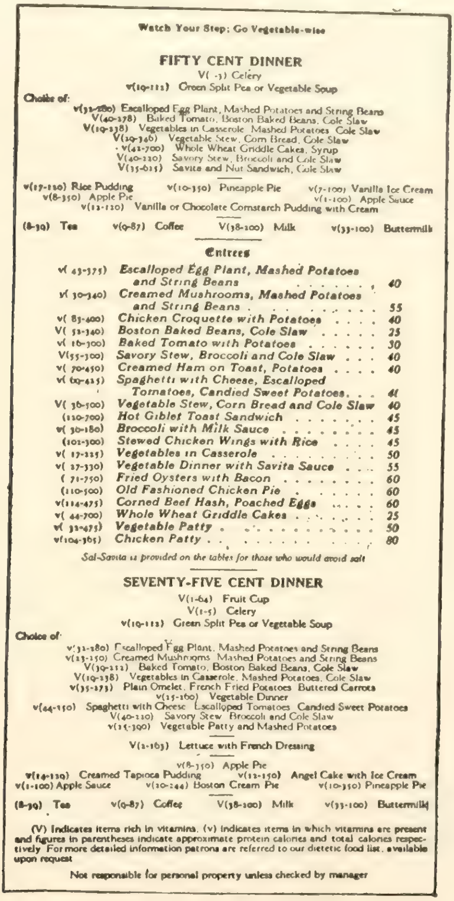
Vegetables. Fancy, extra standard, standard and substandard.

Fruits. California has taken the lead in legislation that makes it less difficult to buy canned fruits. It compels packers to have embossed or lithographed directly into the tin of the top or cover of each can, in letters not less than one-quarter inch high, the grade of all canned apricots, cherries, peaches, and pears of a quality below standard.

Following is the wording required on the top of the can for all second-quality fruit—that is, fruit of a grade below standard:

Commercial Grade Name	*Mark*
Seconds (in not less than 10% syrup going in)	Seconds
Water	Seconds Without Added Sugar
Pie	Seconds Without Added Sugar

General Description of Grades. Superlative quality—The top grade to be designated "Fancy" and packed in extra-heavy syrup—usually 55 per cent.



Watch Your Step; Go Vegetable-wise

FIFTY CENT DINNER

V(-3) Celery
v(19-112) Green Split Pea or Vegetable Soup

Choice of:

v(32-280) Escalloped Egg Plant, Mashed Potatoes and String Beans
V(40-278) Baked Tomato, Boston Baked Beans, Cole Slaw
V(19-238) Vegetables in Casserole Mashed Potatoes Cole Slaw
V(20-346) Vegetable Stew, Corn Bread, Cole Slaw
v(42-700) Whole Wheat Griddle Cakes, Syrup
V(40-220) Savory Stew, Broccoli and Cole Slaw
V(35-615) Savita and Nut Sandwich, Cole Slaw

v(17-120) Rice Pudding
v(10-350) Pineapple Pie
v(7-100) Vanilla Ice Cream
v(8-350) Apple Pie
v(1-100) Apple Sauce
v(12-120) Vanilla or Chocolate Cornstarch Pudding with Cream

(8-39) Tea
v(9-87) Coffee
V(38-100) Milk
v(33-100) Buttermilk

Entrees

v(43-375)	*Escalloped Egg Plant, Mashed Potatoes and String Beans*	40
v(30-340)	*Creamed Mushrooms, Mashed Potatoes and String Beans*	55
v(83-400)	*Chicken Croquette with Potatoes*	40
V(52-340)	*Boston Baked Beans, Cole Slaw*	25
v(16-300)	*Baked Tomato with Potatoes*	30
V(55-300)	*Savory Stew, Broccoli and Cole Slaw*	40
v(70-450)	*Creamed Ham on Toast, Potatoes*	40
v(60-425)	*Spaghetti with Cheese, Escalloped Tomatoes, Candied Sweet Potatoes*	41
V(36-500)	*Vegetable Stew, Corn Bread and Cole Slaw*	40
(120-700)	*Hot Giblet Toast Sandwich*	45
v(30-180)	*Broccoli with Milk Sauce*	45
(102-300)	*Stewed Chicken Wings with Rice*	45
v(17-225)	*Vegetables in Casserole*	50
v(27-330)	*Vegetable Dinner with Savita Sauce*	55
(71-750)	*Fried Oysters with Bacon*	60
(110-500)	*Old Fashioned Chicken Pie*	60
v(114-475)	*Corned Beef Hash, Poached Eggs*	60
v(44-700)	*Whole Wheat Griddle Cakes*	25
v(32-475)	*Vegetable Patty*	50
v(104-365)	*Chicken Patty*	80

Sal-Savita is provided on the tables for those who would avoid salt

SEVENTY-FIVE CENT DINNER

V(1-64) Fruit Cup
V(1-5) Celery
v(19-112) Green Split Pea or Vegetable Soup

Choice of:

v(32-280) Escalloped Egg Plant, Mashed Potatoes and String Beans
v(23-150) Creamed Mushrooms Mashed Potatoes and String Beans
V(30-212) Baked Tomato, Boston Baked Beans, Cole Slaw
V(19-238) Vegetables in Casserole, Mashed Potatoes, Cole Slaw
v(35-273) Plain Omelet, French Fried Potatoes Buttered Carrots
v(25-160) Vegetable Dinner
v(44-150) Spaghetti with Cheese Escalloped Tomatoes Candied Sweet Potatoes
V(40-220) Savory Stew Broccoli and Cole Slaw
v(25-390) Vegetable Patty and Mashed Potatoes

V(2-163) Lettuce with French Dressing

v(8-350) Apple Pie
v(14-130) Creamed Tapioca Pudding
v(12-150) Angel Cake with Ice Cream
v(1-100) Apple Sauce
v(20-244) Boston Cream Pie
v(10-350) Pineapple Pie

(8-39) Tea
v(9-87) Coffee
V(38-100) Milk
v(33-100) Buttermilk

(V) Indicates items rich in vitamins. (v) indicates items in which vitamins are present and figures in parentheses indicate approximate protein calories and total calories respectively For more detailed information patrons are referred to our dietetic food list, available upon request

Not responsible for personal property unless checked by manager

Fig. 54. Dinner menu used in the Childs restaurants.

Fine Quality—The grade between the top and the standard grade to be designated "Choice" and packed in heavy syrup—usually 40 per cent.

Good Quality—The medium grade to be designated

"Standard" and packed in medium syrup—usually 25 per cent.

Second Quality—Fruit packed in 10 per cent syrup to be designated "Second"; in water to be designated "Water"; solid for bakery use to be designed "Pie."

Pineapple. Canned pineapple is packed whole, in slices, grated, in broken pieces, in tidbits, and in fingers. Each pack has a specific use, and prices vary according to the demand. The fancy pack in whole or sliced pineapple is usually sold first. Most institutions can use 90 per cent more of the other packs, and some a good deal without in any way decreasing quality.

There are hundreds of other food products about which the buyer must have knowledge. There are four kinds of baking powder, three kinds of rice, twelve sizes of olives, and so in almost any food classification. There are twelve kinds of American-made cheese, and ten kinds that are imported. There are many so-called Swiss cheeses, but only one that comes from Switzerland, and that has the word Switzerland stamped all over the rind. Cooking fats and oils come in a dozen grades. So do olive oils, syrup, honey, extracts, flour, gelatine, pudding powders, coffee, tea, cocoa, cereals, etc. The buyer should demand standard products made by companies that have a reputation to sustain.

Knowledge of Markets. The food buyer should study the trend in food prices that are influenced by crops, climatic conditions, demand for futures, etc. At least two institutional magazines publish monthly a trend of food prices for the succeeding month. As an example, a November issue lists the following foods as being relatively economical for December:

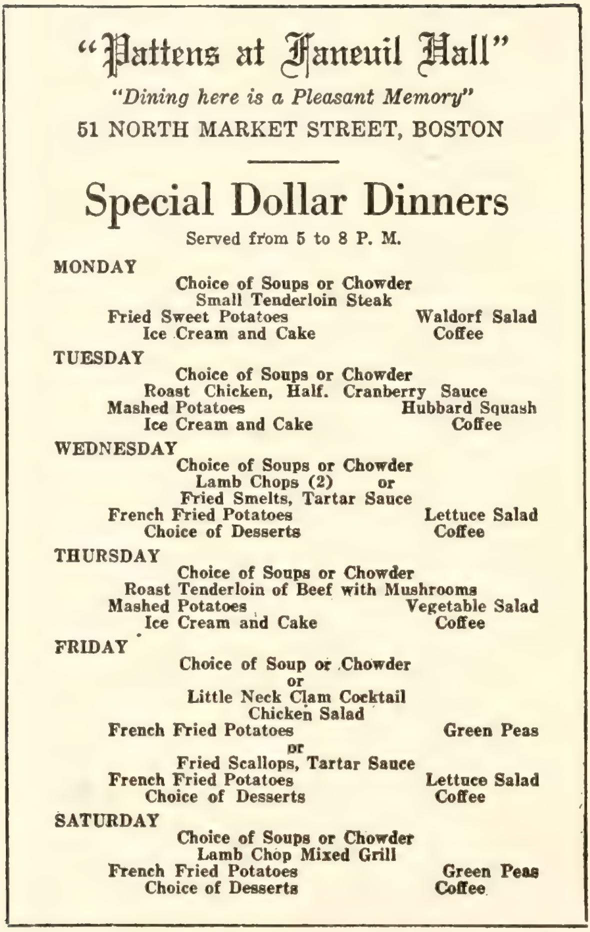
Pork cuts
Turkeys
Ducks
Fowls
Roasting chickens
Oysters
Walnuts
Rice
Beans
Raisins
Prunes
Iceberg lettuce
Grapefruit
Oranges
White potatoes
Sweet potatoes
Carrots
Cabbage
Onions
Spinach

The same list shows foods that are relatively expensive for December:

Butter
Cheese
Eggs
Beef
Broilers
Fresh fish
Canned fish
Fresh tomatoes
Green peas
Apples
Lemons
Honey

This trend of food prices takes into consideration the prices on about thirty foods in the following cities: New York, Philadelphia, Boston, Atlanta, Chicago, Kansas City, Minneapolis and St. Paul, Seattle, San Francisco, and Dallas. The buyer who studies such charts as these will know how and when to buy. It is of great help in buying futures in canned goods. The buying of futures is almost necessary if the buyer wants a guaranty of standard quality throughout the year.

The subject of buying efficiently can be made endless. New foods are coming on the market each day. Some are good. Others are not. The food-buyer must study all of them because he should anticipate public eating habits and be ready to serve them. He can do this by reading the magazines published for his business, taking an active part in educational work with associations, making personal tests of new foods, cooperating with



"Pattens at Faneuil Hall"

"Dining here is a Pleasant Memory"

51 NORTH MARKET STREET, BOSTON

Special Dollar Dinners

Served from 5 to 8 P. M.

MONDAY

Choice of Soups or Chowder
Small Tenderloin Steak
Fried Sweet Potatoes Waldorf Salad
Ice Cream and Cake Coffee

TUESDAY

Choice of Soups or Chowder
Roast Chicken, Half. Cranberry Sauce
Mashed Potatoes Hubbard Squash
Ice Cream and Cake Coffee

WEDNESDAY

Choice of Soups or Chowder
Lamb Chops (2) or
Fried Smelts, Tartar Sauce
French Fried Potatoes Lettuce Salad
Choice of Desserts Coffee

THURSDAY

Choice of Soups or Chowder
Roast Tenderloin of Beef with Mushrooms
Mashed Potatoes Vegetable Salad
Ice Cream and Cake Coffee

FRIDAY

Choice of Soup or Chowder
or
Little Neck Clam Cocktail
Chicken Salad
French Fried Potatoes Green Peas
or
Fried Scallops, Tartar Sauce
French Fried Potatoes Lettuce Salad
Choice of Desserts Coffee

SATURDAY

Choice of Soups or Chowder
Lamb Chop Mixed Grill
French Fried Potatoes Green Peas
Choice of Desserts Coffee

Fig. 55. Such menus as this are often used to induce people to return for other meals.

present hotel and restaurant food bureaus, and studying available books on the subject of foods. Such a list is published in this book.[1]

WHAT OTHERS SAY

"It is in the purchase of unknown brands of canned goods that a steward must be very careful. I open every sample can and the chef tastes the product for quality. I then drain off the water and weigh the net contents. This is the only way in which I can properly judge two competitive products."

JACK DARRICADE.

"For a purchasing basis most hospitals have adopted the budget system, as it enables the dietitian to effect a practical method in which to combat the demands on the hospital purse. What to buy and how to buy and how much to buy rest on the institutional requirements, but two basic principles should be considered. First, competition in the purchase of food supplies should be required; second, food should be bought as you buy equipment—*i.e.*, from reliable firms that maintain standards of quality. Careful selection of the standard food products is economy whenever purchasing, although the cost of the standard produce seems sometimes more than that of other companies.

"Perishable foods, such as meats, vegetables, fruits, milk, butter, and eggs, should be purchased by the dietitian, as she is better qualified to judge the requirements of the perishables used daily in relation to that of the menu, and often it is necessary to have her decision for substituting when the market is flexible."

MARGARET D. MARLOWE.

"The chef and I buy meat together. I telephone a few of the best butchers and tell them the quality and amounts I need. I get the prices from each and then we start out on our buying trip. First we visit the butcher who gave us the lowest quotation. If his meats are up to our standard we buy them on the spot and have them sent direct to the hotel. Butchers appreciate this clean-cut method of purchasing—and you may be sure that it results in our getting prices that are right.

"A good point to remember in the purchase of meats is that dark meat should always be aged to be tender, while light meats, such as veal, lamb, and pork, should be as fresh as possible.

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[1] The National Canners Association, Washington, D. C., will gladly send bulletins, free of charge, that give instruction for buying and storing canned foods. Similar information about meats can be had by writing the National Live Stock and Meat Board, Chicago, Illinois. For buying information about fish, write the United States Fisheries Association, New York City.

"We buy milk and cream from a large organization which cannot afford to sell us anything that drops below our standard. We do not, however, take anything for granted. We make periodic tests of both. This is the safest way, because those who deliver them might slip up occasionally and fail to send us a shipment that measured up to our standard. This has sometimes happened and it is, no doubt, quite a common incident in some cities.

"Breakfast cereals and similar highly standardized and well-advertised package products are easy to purchase. Tests are seldom necessary and the same is true of some brands of canned goods, the manufacturers of which maintain a high average of quality year in and year out."

E. P. Moser.

CHAPTER XXVI

THE BUSINESS OF MAKING MENUS

Why is menu-making the weakest link in food service? Why is it given the least attention of all food-education subjects in schools and colleges? And what are we going to do about it—and how?

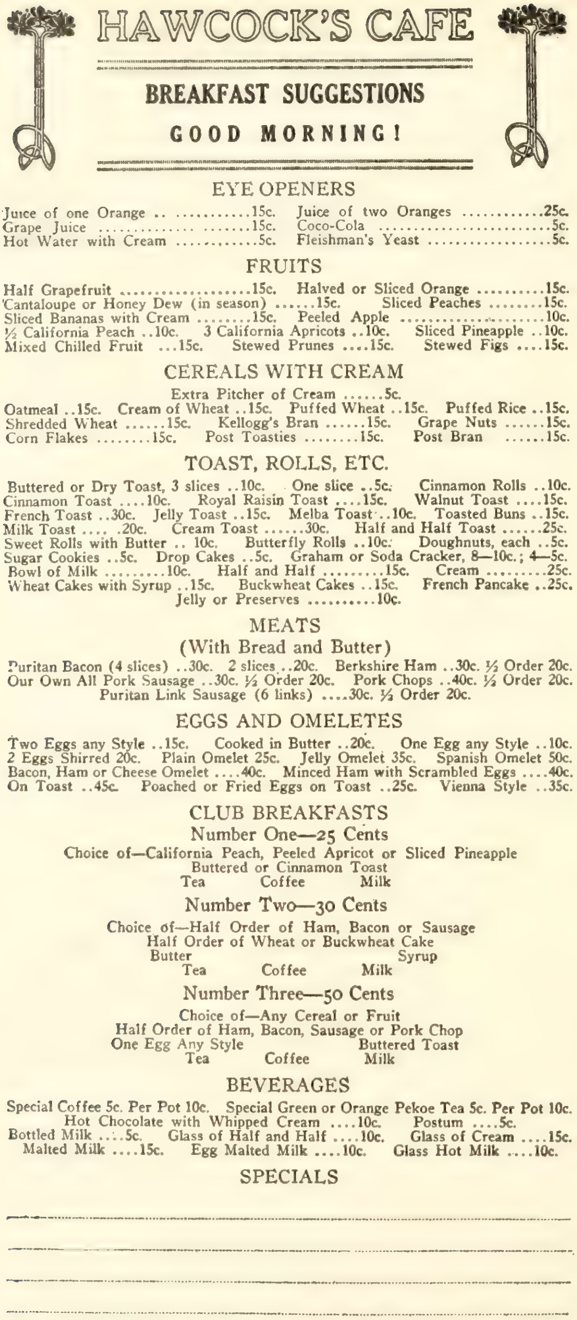
"It can't be taught; it must be learned by practice," said eighteen chefs and stewards.

But how can it be learned by practice, when only a small percentage of those who do the work know the fundamental principles on which good menu-planning is based?

We must agree that practice is essential, but of little value unless it is based on scientific truths. These truths, as discovered by leading food authorities, should be the basis of theoretical training that can be perfected by practice. Years of experience and research have shown these practical food experts that scientific menu-planning is based on ten fundamental principles:

1. Food supply
2. Organization
3. Clientele
4. Cost
5. Balance
6. Variety
7. Season
8. Locality
9. Left-overs
10. Occasion

Food Supply. Unfortunately, no one has ever been able to accurately anticipate the amount of food that can be sold each day. As a result, the ice box and store-rooms contain foods that must be used before they are beyond redemption. Therefore, the one who makes the



HAWCOCK'S CAFE

BREAKFAST SUGGESTIONS

GOOD MORNING!

EYE OPENERS

Juice of one Orange .. ..15c. Juice of two Oranges ....25c.
Grape Juice ....15c. Coco-Cola ....5c.
Hot Water with Cream ....5c. Fleishman's Yeast ....5c.

FRUITS

Half Grapefruit ....15c. Halved or Sliced Orange ....15c.
Cantaloupe or Honey Dew (in season) ......15c. Sliced Peaches ....15c.
Sliced Bananas with Cream ....15c. Peeled Apple ....10c.
½ California Peach ..10c. 3 California Apricots ..10c. Sliced Pineapple ..10c.
Mixed Chilled Fruit ...15c. Stewed Prunes ....15c. Stewed Figs ....15c.

CEREALS WITH CREAM

Extra Pitcher of Cream ......5c.
Oatmeal ..15c. Cream of Wheat ..15c. Puffed Wheat ..15c. Puffed Rice ..15c.
Shredded Wheat ......15c. Kellogg's Bran ......15c. Grape Nuts ......15c.
Corn Flakes ....15c. Post Toasties ....15c. Post Bran ......15c.

TOAST, ROLLS, ETC.

Buttered or Dry Toast, 3 slices ..10c. One slice ..5c. Cinnamon Rolls ..10c.
Cinnamon Toast ....10c. Royal Raisin Toast ....15c. Walnut Toast ....15c.
French Toast ..30c. Jelly Toast ..15c. Melba Toast ..10c. Toasted Buns ..15c.
Milk Toast .... .20c. Cream Toast ......30c. Half and Half Toast ......25c.
Sweet Rolls with Butter .. 10c. Butterfly Rolls ..10c. Doughnuts, each ..5c.
Sugar Cookies ..5c. Drop Cakes ..5c. Graham or Soda Cracker, 8—10c.; 4—5c.
Bowl of Milk ....10c. Half and Half ....15c. Cream ....25c.
Wheat Cakes with Syrup ..15c. Buckwheat Cakes ..15c. French Pancake ..25c.
Jelly or Preserves ....10c.

MEATS
(With Bread and Butter)

Puritan Bacon (4 slices) ..30c. 2 slices ..20c. Berkshire Ham ..30c. ½ Order 20c.
Our Own All Pork Sausage ..30c. ½ Order 20c. Pork Chops ..40c. ½ Order 20c.
Puritan Link Sausage (6 links) ....30c. ½ Order 20c.

EGGS AND OMELETES

Two Eggs any Style ..15c. Cooked in Butter ..20c. One Egg any Style ..10c.
2 Eggs Shirred 20c. Plain Omelet 25c. Jelly Omelet 35c. Spanish Omelet 50c.
Bacon, Ham or Cheese Omelet ....40c. Minced Ham with Scrambled Eggs ....40c.
On Toast ..45c. Poached or Fried Eggs on Toast ..25c. Vienna Style ..35c.

CLUB BREAKFASTS

Number One—25 Cents

Choice of—California Peach, Peeled Apricot or Sliced Pineapple
Buttered or Cinnamon Toast
Tea Coffee Milk

Number Two—30 Cents

Choice of—Half Order of Ham, Bacon or Sausage
Half Order of Wheat or Buckwheat Cake
Butter Syrup
Tea Coffee Milk

Number Three—50 Cents

Choice of—Any Cereal or Fruit
Half Order of Ham, Bacon, Sausage or Pork Chop
One Egg Any Style Buttered Toast
Tea Coffee Milk

BEVERAGES

Special Coffee 5c. Per Pot 10c. Special Green or Orange Pekoe Tea 5c. Per Pot 10c.
Hot Chocolate with Whipped Cream ....10c. Postum ....5c.
Bottled Milk ....5c. Glass of Half and Half ....10c. Glass of Cream ....15c.
Malted Milk ....15c. Egg Malted Milk ....10c. Glass Hot Milk ....10c.

SPECIALS

Fig. 56. Breakfast menu in a popular priced restaurant in a small city.

menus must know what is to be used, and then figure how to do it, so that there will be a market. This is no easy matter. The butcher, baker, storeroom man, and pantry man, may each have foods which must be used at once. A sudden change of temperature may make it impossible to sell these left-overs unless they are made unusually attractive and palatable. Most chefs are especially adept at this very thing.

When markets are at a distance it becomes very difficult to plan ahead. I have gone through the agony of having Thursday pass without the receipt of the fish order, only to have it come in on Saturday. More than once our guests had to be satisfied with canned salmon or tuna, creamed in salad or croquettes. Modern refrigeration has made it possible to carry larger stocks of perishables and thus safeguard service, but even so, those who are off the beaten paths have troubles of their own. Institutions owe a vote of thanks to the canning industry. Very few kitchens can get along without the use of a great variety of packed foods. Today, more canned meats, fruit, and vegetables are used than ever before. The No. 10 can now plays a very important part in menu-making.

A guaranty of an adequate supply of food is dependent upon the ability of the one who buys the raw food. He must study markets and contract in advance for supplies. An uninterrupted flow of supplies is of more value than a small saving in price. This is one of the best reasons for dealing with a few reliable provision houses to the exclusion of farmers, butchers, and dealers who cannot guarantee service. This point was stressed by many of those who replied to the questionnaire.

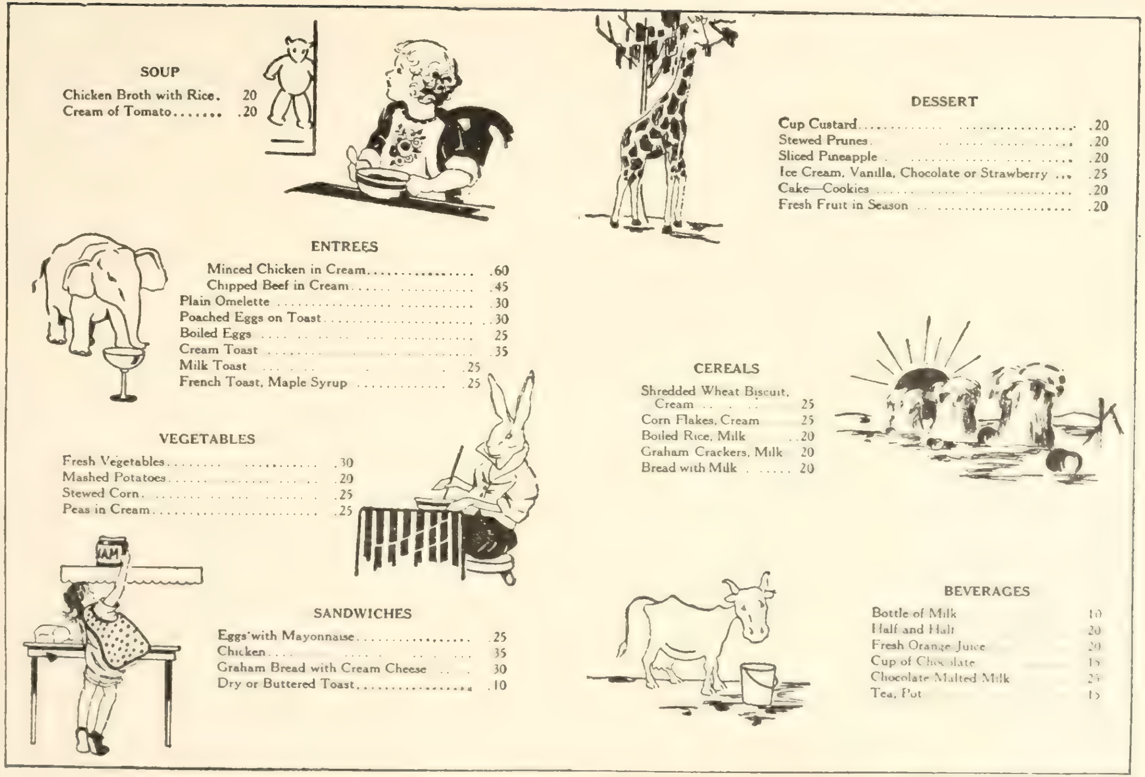
Organization. Raw food is of no value unless there is some one to prepare it. It cannot be sold at a profit unless it can be prepared economically. Therefore, it is necessary to operate the kitchen with the lowest possible payroll, and arrange menus so that each cook has an equal amount of work. In the large organization this means that menus must be made up of dishes that are prepared by each cook. Otherwise, the fry cook may be loafing while the roast cook may be swamped with work. The proper rotation of dishes will keep the payroll at a minimum and efficiency at a maximum.

Clientele. People do not look alike—nor eat alike. There are differences of age, sex, nationality, occupation, education, and culture. Women want to be slender, old men want to be young, young men want to be big and strong, and sick people want to get well. The convention from New Orleans cannot be fed the same as the W. C. T. U. from Oregon. The German delegation would be starved on the diet offered a group of girls from Barnard.

When the chef makes menus he must depend on the steward, head waiter, and manager for information about those whom he is to feed. If the hotel is headquarters for the "New York Cloak and Suit Makers," he can add some popular "Kosher dishes." Each nationality has its popular foods. So do the citizens of different states and communities.

Girls and women like fancy foods; men usually like those that are plain and substantial. Feeding "Master Plumbers" is quite different from serving a convention of scientists. Brain and brawn must be given different menus.

Add to these differences the new fashions in food and



SOUP

Chicken Broth with Rice	20
Cream of Tomato	.20

ENTREES

Minced Chicken in Cream	.60
Chipped Beef in Cream	.45
Plain Omelette	.30
Poached Eggs on Toast	.30
Boiled Eggs	.25
Cream Toast	.35
Milk Toast	.25
French Toast, Maple Syrup	.25

VEGETABLES

Fresh Vegetables	.30
Mashed Potatoes	.20
Stewed Corn	.25
Peas in Cream	.25

SANDWICHES

Eggs with Mayonnaise	.25
Chicken	.35
Graham Bread with Cream Cheese	.30
Dry or Buttered Toast	.10

DESSERT

Cup Custard	.20
Stewed Prunes	.20
Sliced Pineapple	.20
Ice Cream, Vanilla, Chocolate or Strawberry	.25
Cake—Cookies	.20
Fresh Fruit in Season	.20

CEREALS

Shredded Wheat Biscuit, Cream	25
Corn Flakes, Cream	25
Boiled Rice, Milk	.20
Graham Crackers, Milk	20
Bread with Milk	20

BEVERAGES

Bottle of Milk	10
Half and Half	20
Fresh Orange Juice	20
Cup of Chocolate	15
Chocolate Malted Milk	25
Tea, Pot	15

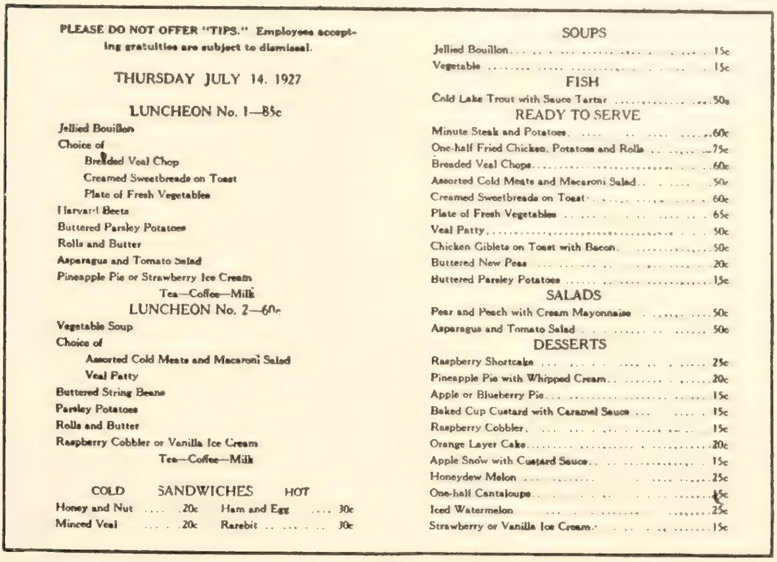
Fig. 57. More women with children travel now than ever before. Also there is a great increase in hotel living for families. As a result it pays to please the children. This menu is used at the Gibson hotel in Cincinnati.

you have the greatest problem in menu-making. It is so important that the chef, steward, head waiter, and manager should have frequent meetings to discuss better menus. In addition, the chef and steward should study the latest books, magazines, and newspapers, because these herald changes that take place in food habits. One chef of my acquaintance seeks out people of influence in the nationality of those to be served at special banquets. In this way he learns what they like to eat—which makes for repeat business.

Cost. "Give the people what they want—if they pay for it," is what a former employer used to tell us. The house may have to maintain a standard of excellence that removes it from the possibility of doing much banquet business. Perhaps competition demands that out-of-season foods be listed on the menu as soon as they are on the market. Some hotels and restaurants cannot afford to have it said that fresh strawberries were listed first on the menu in a competing house. So they list and sell some foods in spite of the loss. A friend of mine in Europe has strawberries brought by airplane from Algeria so that he can be the first to serve them.

Generally, however, Americans do not hesitate to ask and argue about price. They want value received. Therefore, menus must be priced fairly. And this is difficult when there are variations from week to week. Eggs may be twice as expensive in January as they are in August. Turkey is out of sight during the holidays. Cucumbers are worth their weight in gold in January. If such foods are served at the high peak, it seems logical to get more for them. Generally, hotels try to set a price and stick to it the year round, and this causes a great deal of criticism. Menu prices cannot be changed for every fluctuation in raw-food cost, but there should be some adjustment for seasons.

The wise menu-maker reduces to a minimum foods which are so expensive that they cannot be sold at a fair profit. The American market has so much to offer that a good variety is always possible. There are any number of inexpensive meat cuts which can be made into tasty nutritious dishes. It's all in the preparation. Potatoes are not nearly as popular as we assume. Experiments prove that rice, corn, spaghetti, or macaroni can often be substituted without loss of business or good will.



PLEASE DO NOT OFFER "TIPS." Employees accepting gratuities are subject to dismissal.

THURSDAY JULY 14. 1927

LUNCHEON No. 1—85c

Jellied Bouillon
Choice of
  Breaded Veal Chop
  Creamed Sweetbreads on Toast
  Plate of Fresh Vegetables
Harvard Beets
Buttered Parsley Potatoes
Rolls and Butter
Asparagus and Tomato Salad
Pineapple Pie or Strawberry Ice Cream
Tea—Coffee—Milk

LUNCHEON No. 2—60c

Vegetable Soup
Choice of
  Assorted Cold Meats and Macaroni Salad
  Veal Patty
Buttered String Beans
Parsley Potatoes
Rolls and Butter
Raspberry Cobbler or Vanilla Ice Cream
Tea—Coffee—Milk

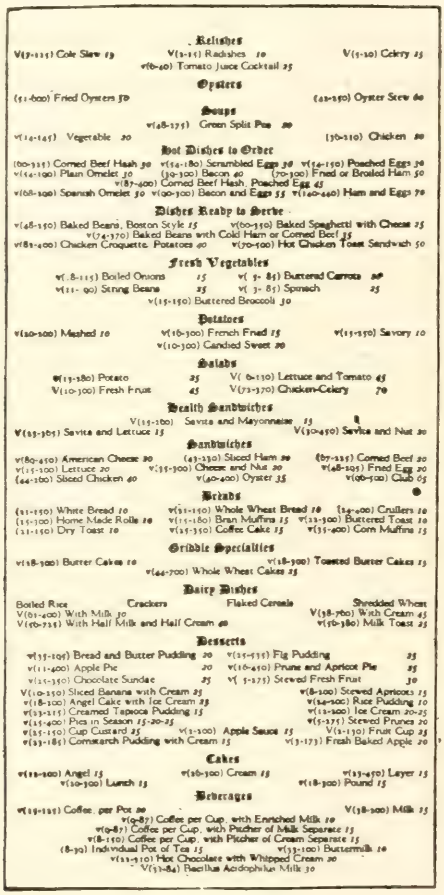
COLD		SANDWICHES HOT	
Honey and Nut	.20c	Ham and Egg	30c
Minced Veal	.20c	Rarebit	30c

SOUPS	
Jellied Bouillon	15c
Vegetable	15c
FISH	
Cold Lake Trout with Sauce Tartar	.50c
READY TO SERVE	
Minute Steak and Potatoes	.60c
One-half Fried Chicken, Potatoes and Rolls	.75c
Breaded Veal Chops	.60c
Assorted Cold Meats and Macaroni Salad	.50c
Creamed Sweetbreads on Toast	60c
Plate of Fresh Vegetables	65c
Veal Patty	50c
Chicken Giblets on Toast with Bacon	.50c
Buttered New Peas	.20c
Buttered Parsley Potatoes	.15c
SALADS	
Pear and Peach with Cream Mayonnaise	.50c
Asparagus and Tomato Salad	50c
DESSERTS	
Raspberry Shortcake	25c
Pineapple Pie with Whipped Cream	.20c
Apple or Blueberry Pie	15c
Baked Cup Custard with Caramel Sauce	15c
Raspberry Cobbler	15c
Orange Layer Cake	.20c
Apple Snow with Custard Sauce	15c
Honeydew Melon	.25c
One-half Cantaloupe	.15c
Iced Watermelon	.25c
Strawberry or Vanilla Ice Cream	.15c

Fig. 58. A tea room menu that illustrates the principle of listing some of the same foods on the table d'hote as well as the à la carte.

If expensive foods must be served, it is advisable to reduce the size of portions and increase those of less expensive foods. A heavy soup, salad, or dessert often solves the problem. After all, most people gauge a meal by its filling effect. Naturally it must be well balanced.

Balance. Variety and balance are twin considerations in making menus. Balance is largely a question of dietetics, whereas variety concerns fashion and public taste. A tasty meal is not always well balanced, nor is a well-balanced meal always palatable.



Relishes
V(7-115) Cole Slaw 15 V(2-15) Radishes 10 V(5-20) Celery 25
v(6-40) Tomato Juice Cocktail 25

Oysters
(51-600) Fried Oysters 50 (42-250) Oyster Stew 60

Soups
v(48-275) Green Split Pea 20
v(14-145) Vegetable 20 (30-210) Chicken 20

Hot Dishes to Order
(60-325) Corned Beef Hash 30 v(54-180) Scrambled Eggs 30 v(54-150) Poached Eggs 30
v(54-190) Plain Omelet 30 (30-300) Bacon 40 (70-300) Fried or Broiled Ham 50
v(87-400) Corned Beef Hash, Poached Egg 45
v(68-200) Spanish Omelet 50 v(90-300) Bacon and Eggs 55 v(140-440) Ham and Eggs 70

Dishes Ready to Serve
v(48-150) Baked Beans, Boston Style 15 v(60-350) Baked Spaghetti with Cheese 25
v(74-370) Baked Beans with Cold Ham or Corned Beef 35
v(81-400) Chicken Croquette, Potatoes 40 v(70-500) Hot Chicken Toast Sandwich 50

Fresh Vegetables
v(8-115) Boiled Onions 15 v(5-85) Buttered Carrots 20
v(11-90) String Beans 25 v(3-85) Spinach 25
v(15-150) Buttered Broccoli 30

Potatoes
v(20-500) Mashed 10 v(16-300) French Fried 15 v(15-250) Savory 10
v(10-300) Candied Sweet 20

Salads
v(13-280) Potato 25 V(6-130) Lettuce and Tomato 45
V(10-300) Fresh Fruit 45 V(72-370) Chicken-Celery 70

Health Sandwiches
V(15-260) Savita and Mayonnaise 15
V(25-365) Savita and Lettuce 15 V(30-450) Savita and Nut 20

Sandwiches
v(80-450) American Cheese 20 (43-230) Sliced Ham 20 (67-225) Corned Beef 20
v(15-200) Lettuce 20 v(35-300) Cheese and Nut 20 v(48-205) Fried Egg 20
(44-260) Sliced Chicken 40 v(40-400) Oyster 35 v(90-500) Club 65

Breads
(21-150) White Bread 10 v(21-150) Whole Wheat Bread 10 (24-400) Crullers 10
(15-300) Home Made Rolls 10 v(15-180) Bran Muffins 15 v(22-300) Buttered Toast 10
(21-150) Dry Toast 10 v(25-350) Coffee Cake 15 v(35-400) Corn Muffins 15

Griddle Specialties
v(28-300) Butter Cakes 10 v(28-300) Toasted Butter Cakes 15
v(44-700) Whole Wheat Cakes 25

Dairy Dishes
Boiled Rice Crackers Flaked Cereals Shredded Wheat
V(61-400) With Milk 30 V(38-760) With Cream 45
V(56-725) With Half Milk and Half Cream 40 v(56-380) Milk Toast 25

Desserts
v(35-105) Bread and Butter Pudding 20 v(25-535) Fig Pudding 25
v(11-400) Apple Pie 20 v(16-450) Prune and Apricot Pie 25
v(25-350) Chocolate Sundae 25 v(5-275) Stewed Fresh Fruit 30
V(10-250) Sliced Banana with Cream 25 v(8-200) Stewed Apricots 15
v(18-300) Angel Cake with Ice Cream 25 v(24-500) Rice Pudding 10
v(23-215) Creamed Tapioca Pudding 15 v(12-200) Ice Cream 20-25
v(25-400) Pies in Season 15-20-25 v(5-275) Stewed Prunes 20
v(25-150) Cup Custard 25 v(2-200) Apple Sauce 15 V(2-130) Fruit Cup 25
v(23-185) Cornstarch Pudding with Cream 15 v(3-173) Fresh Baked Apple 20

Cakes
v(12-200) Angel 15 v(26-300) Cream 15 v(23-450) Layer 15
v(20-300) Lunch 15 v(18-300) Pound 15

Beverages
v(19-125) Coffee, per Pot 20 V(38-200) Milk 15
v(9-87) Coffee per Cup, with Enriched Milk 10
v(9-87) Coffee per Cup, with Pitcher of Milk Separate 15
v(8-150) Coffee per Cup, with Pitcher of Cream Separate 15
(8-30) Individual Pot of Tea 15 v(33-100) Buttermilk 10
v(22-310) Hot Chocolate with Whipped Cream 20
V(31-84) Bacillus Acidophilus Milk 30

Fig. 59. A la carte menu from Childs restaurants.

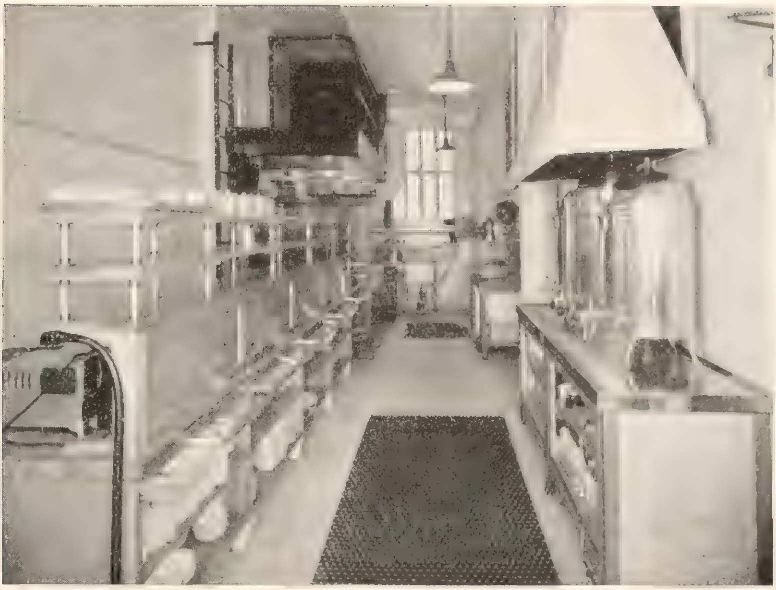


Plate 35. A well-lighted kitchen is easier to keep in a sanitary condition. Note the excellent placing of lights and the flat steel mat.

Plate 36. The chef and steward who know how to buy meat can always save money on purchases. Dealers give such buyers every advantage.

Those who eat for health know that a well-balanced menu should contain a bulky food, such as fruits, vegetables, or whole-grain products; alkaline foods such as nuts, milk, fruits, and vegetables; sugars and starches, especially from fresh fruits and vegetables; proteins such as meats, fish, eggs, or cheese; minerals from such foods as fruits and vegetables; vitamins from milk, fruit and vegetables; and ample liquids.

Most authorities agree that a meal should not be made up of more than one starch or one protein dish. This means that potatoes, corn, spaghetti and macaroni should not be served at the same meal, and that meat, fish, and eggs together do not make a good combination.

But not all dietitians agree on what makes a well-balanced meal. Therefore, those who make menus should do no more than eliminate dishes that are too heavy or that are obviously unbalanced.

Most chefs do not push the sale of meats, because they are not as profitable as other foods and because the public does not demand so much meat as formerly.

When heavy meats are served it is advisable to have light vegetables. Light, delicate meat demands a heavy salad and substantial vegetables. A light salad is used when the dessert is heavy, and *vice versa.*

The well-balanced menu is a symphony of combinations that build business by promoting health.

Variety. "Repetition is the menu-maker's worst habit."

"There is no excuse for the same entrées on the same day each week."

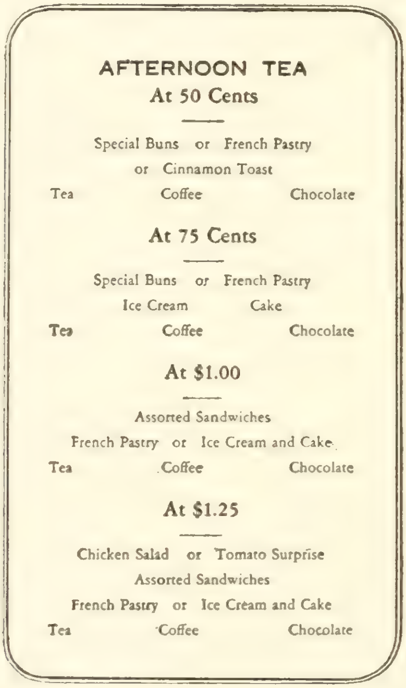
"Wise chefs try to have one new combination every day."

"I have at least one light entrée every day."

"We have been very successful in serving a heavy salad as a light entrée dish."

"We find that 70 out of 100 order one of the first three items on the entrée, so we list our most profitable dishes first."

"An old dish can be made like new by giving it a touch of color. We increased our sale of grapefruit 15 per cent by pouring a little grape juice in the cavity where the pulp and seeds were."



AFTERNOON TEA

At 50 Cents

Special Buns or French Pastry
or Cinnamon Toast
Tea Coffee Chocolate

At 75 Cents

Special Buns or French Pastry
Ice Cream Cake
Tea Coffee Chocolate

At $1.00

Assorted Sandwiches
French Pastry or Ice Cream and Cake
Tea Coffee Chocolate

At $1.25

Chicken Salad or Tomato Surprise
Assorted Sandwiches
French Pastry or Ice Cream and Cake
Tea Coffee Chocolate

Fig. 60. Afternoon tea menu.

These are a few of the excerpts from letters sent in by chefs and stewards. Most of them also agree that course luncheons and dinners should be made up of a light food, then a heavy one, and *vice versa*. If the meal starts with a heavy cocktail, the soup should be light. If the cocktail is light, the soup can be heavy, and so on through the meal. If the meal starts with a fruit cocktail, fruit should not be used for salad. Tomato soup and tomato salad are poor combinations. So are combinations of creamed meats or fish with creamed vegetables; two heavy dishes following two starches; foods of the same color, such as beets and red cabbage; foods of the same taste; and heavy meats without tartness.

There must be a combination of beef, lamb, veal, pork, two kinds of poultry, fish, eggs, and vegetable entrées on the well-made *à la carte* menu or selections from the *table d'hôte* menu.

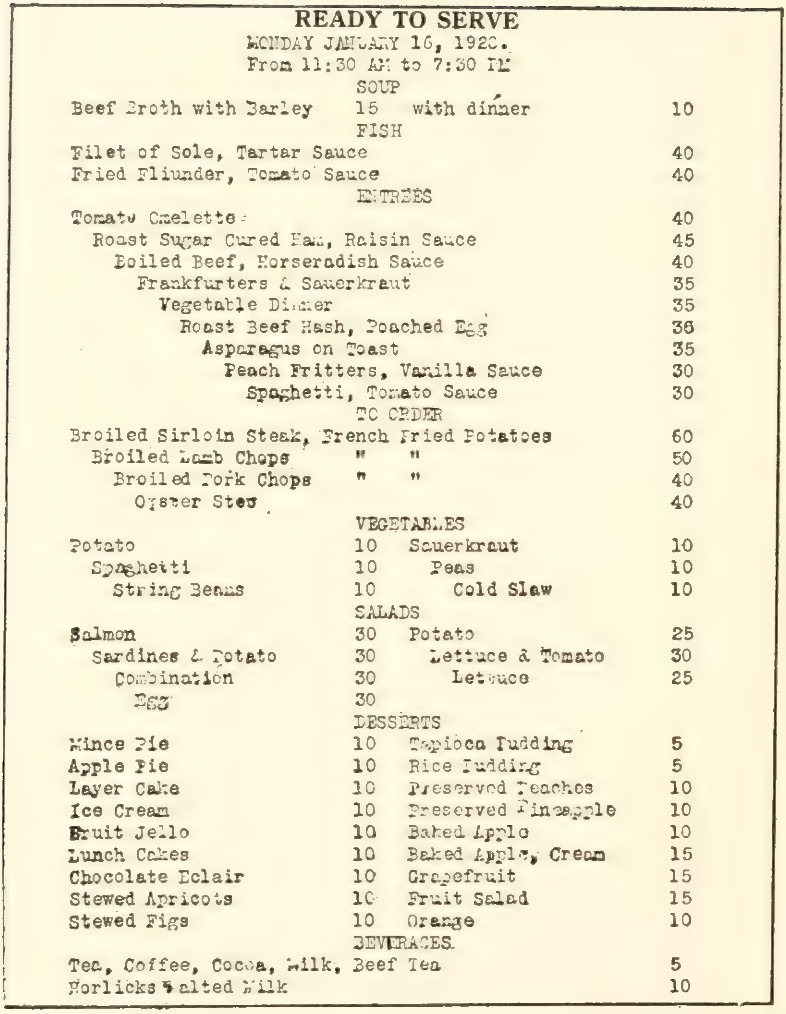
Too many fried dishes are as bad as all boiled foods. Broiled and baked foods are gaining in popularity, while fried foods are on the decline.

Sauces, relishes, and gravies should not be the same every day. Nor should there be too many dishes made up of stews.

Soups should be changed from day to day, and they should not be the same from day to day. A letter from an Eastern steward states that a prominent hotel had on its Sunday menu three soups; purée of tomatoes, purée of peas, and purée Mangole—the last made up of the first two.

"You often see a 'New England Boiled Dinner' on the menu, and the same vegetables are listed separately," he wrote.

"You often see a cream sauce with the fish, a white sauce with the fritter or croquette, and for dessert a cup custard, a custard pie, creamed tapioca, or custard pudding. Cold bouillon, hot consommé, and beef tea are



READY TO SERVE

MONDAY JANUARY 16, 1922.
From 11:30 AM to 7:30 PM

SOUP

Beef Broth with Barley	15	with dinner	10

FISH

Filet of Sole, Tartar Sauce	40
Fried Flounder, Tomato Sauce	40

ENTREES

Tomato Omelette	40
Roast Sugar Cured Ham, Raisin Sauce	45
Boiled Beef, Horseradish Sauce	40
Frankfurters & Sauerkraut	35
Vegetable Dinner	35
Roast Beef Hash, Poached Egg	36
Asparagus on Toast	35
Peach Fritters, Vanilla Sauce	30
Spaghetti, Tomato Sauce	30

TO ORDER

Broiled Sirloin Steak, French Fried Potatoes	60
Broiled Lamb Chops " "	50
Broiled Pork Chops " "	40
Oyster Stew	40

VEGETABLES

Potato	10	Sauerkraut	10
Spaghetti	10	Peas	10
String Beans	10	Cold Slaw	10

SALADS

Salmon	30	Potato	25
Sardines & Potato	30	Lettuce & Tomato	30
Combination	30	Lettuce	25
Egg	30		

DESSERTS

Mince Pie	10	Tapioca Pudding	5
Apple Pie	10	Rice Pudding	5
Layer Cake	10	Preserved Peaches	10
Ice Cream	10	Preserved Pineapple	10
Fruit Jello	10	Baked Apple	10
Lunch Cakes	10	Baked Apple, Cream	15
Chocolate Eclair	10	Grapefruit	15
Stewed Apricots	10	Fruit Salad	15
Stewed Figs	10	Orange	10

BEVERAGES

Tea, Coffee, Cocoa, Milk, Beef Tea	5
Horlicks Malted Milk	10

Fig. 61. A well selected menu for a Y.M.C.A.

often seen on the same menu. Also, roast beef, hamburger steak, and beef stew."

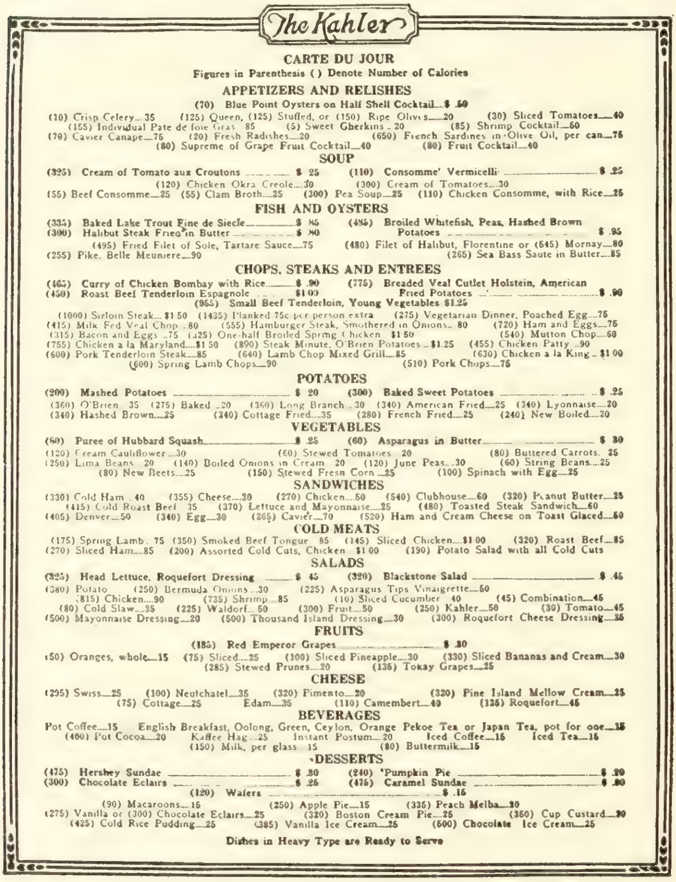
The modern menu should have colorful food combinations. There must be light dishes for those who want to reduce and meatless dishes for the vegetarians. An occasional sweet entrée is often advisable. So is a good selection of soups, salads, fruit and gelatine desserts, inexpensive puddings, new beverages, ice cream, and fountain drinks, cheese specialties, and the popular waffle and sandwich dishes. Make them colorful, well shaped, and in good-looking sizes—and don't forget the profitable extras such as olives, celery, and the like.

Season. The menu-maker who knows when all foods are in season can keep costs down to a minimum. He realizes that such foods are best at that time.

Seasons also have an influence on eating habits. Warm weather calls for lighter foods such as salads and sandwiches, cold drinks, vegetable dinners, fruit dishes, and dairy products. Cold or rainy weather usually causes a demand for heat-producing dishes such as bacon, ham, heavy soups, and cheese dishes.

Luncheon dishes should be lighter than those served for dinner, and fewer courses are necessary. Breakfast coffee is often made stronger than that served for dinner. Sandwiches for teas should be much smaller than those for luncheon. After-the-theater menus can be made up of specialties such as cheese dishes, waffles, creamed dishes, or open-faced sandwiches.

Locality. Competition is not the same in any two places. People will not pay more in one place than another, unless there are features which make it worth while. New food dishes, decorations, and personality make people willing to pay more. So do good ventilation, cleanliness, quiet, good lighting, and comfortable chairs and tables. The menu should fit the location, and help carry out a complete plan.



The Kahler

CARTE DU JOUR

Figures in Parenthesis ( ) Denote Number of Calories

APPETIZERS AND RELISHES

(70) Blue Point Oysters on Half Shell Cocktail...$ .60

(10) Crisp Celery...35 (125) Queen, (125) Stuffed, or (150) Ripe Olives...20 (30) Sliced Tomatoes...40
(155) Individual Pate de foie Gras...85 (5) Sweet Gherkins...20 (85) Shrimp Cocktail...60
(70) Cavier Canape...75 (20) Fresh Radishes...20 (650) French Sardines in Olive Oil, per can...75
(80) Supreme of Grape Fruit Cocktail...40 (80) Fruit Cocktail...40

SOUP

(325) Cream of Tomato aux Croutons .... $ .25 (110) Consomme' Vermicelli .... $ .25

(120) Chicken Okra Creole...30 (300) Cream of Tomatoes...30
(55) Beef Consomme...25 (55) Clam Broth...25 (300) Pea Soup...25 (110) Chicken Consomme, with Rice...25

FISH AND OYSTERS

(335) Baked Lake Trout Fine de Siecle............$ .85 (485) Broiled Whitefish, Peas, Hashed Brown
(300) Halibut Steak Fried in Butter ....$ .80 Potatoes .... $ .95

(495) Fried Filet of Sole, Tartare Sauce...75 (480) Filet of Halibut, Florentine or (545) Mornay...80
(255) Pike, Belle Meuniere...90 (265) Sea Bass Saute in Butter...85

CHOPS, STEAKS AND ENTREES

(465) Curry of Chicken Bombay with Rice............$ .90 (775) Breaded Veal Cutlet Holstein, American
(450) Roast Beef Tenderloin Espagnole .... $1.00 Fried Potatoes .... $ .90
(965) Small Beef Tenderloin, Young Vegetables $1.25

(1000) Sirloin Steak...$1.50 (1435) Planked 75c per person extra (275) Vegetarian Dinner, Poached Egg...75
(415) Milk Fed Veal Chop...80 (555) Hamburger Steak, Smothered in Onions...80 (720) Ham and Eggs...75
(315) Bacon and Eggs...75 (325) One-half Broiled Spring Chicken...$1.50 (540) Mutton Chop...60
(755) Chicken a la Maryland...$1.50 (890) Steak Minute, O'Brien Potatoes...$1.25 (455) Chicken Patty...90
(600) Pork Tenderloin Steak...85 (640) Lamb Chop Mixed Grill...85 (630) Chicken a la King...$1.00
(600) Spring Lamb Chops...90 (510) Pork Chops...75

POTATOES

(200) Mashed Potatoes .... $ .20 (300) Baked Sweet Potatoes .... $ .25

(360) O'Brien...35 (275) Baked...20 (360) Long Branch...30 (340) American Fried...25 (340) Lyonnaise...20
(340) Hashed Brown...25 (340) Cottage Fried...35 (280) French Fried...25 (240) New Boiled...20

VEGETABLES

(80) Puree of Hubbard Squash............$ .25 (60) Asparagus in Butter............ $ .30

(120) Cream Cauliflower...30 (60) Stewed Tomatoes...20 (80) Buttered Carrots...25
(250) Lima Beans...20 (140) Boiled Onions in Cream...20 (120) June Peas...30 (60) String Beans...25
(80) New Beets...25 (150) Stewed Fresn Corn...25 (100) Spinach with Egg...25

SANDWICHES

(330) Cold Ham...40 (355) Cheese...30 (270) Chicken...50 (540) Clubhouse...60 (320) Peanut Butter...25
(415) Cold Roast Beef...35 (370) Lettuce and Mayonnaise...25 (480) Toasted Steak Sandwich...60
(405) Denver...50 (340) Egg...30 (265) Cavier...70 (520) Ham and Cream Cheese on Toast Glaced...50

COLD MEATS

(175) Spring Lamb...75 (350) Smoked Beef Tongue...85 (145) Sliced Chicken...$1.00 (320) Roast Beef...85
(270) Sliced Ham...85 (200) Assorted Cold Cuts, Chicken...$1.00 (190) Potato Salad with all Cold Cuts

SALADS

(325) Head Lettuce, Roquefort Dressing .... $ .45 (320) Blackstone Salad .... $ .45

(380) Potato (250) Bermuda Onions...30 (225) Asparagus Tips Vinaigrette...50
(815) Chicken...90 (735) Shrimp...85 (10) Sliced Cucumber...40 (45) Combination...45
(80) Cold Slaw...35 (225) Waldorf...50 (300) Fruit...50 (250) Kahler...50 (30) Tomato...45
(500) Mayonnaise Dressing...20 (500) Thousand Island Dressing...30 (300) Roquefort Cheese Dressing...25

FRUITS

(185) Red Emperor Grapes .... $ .20

(50) Oranges, whole...15 (75) Sliced...25 (100) Sliced Pineapple...30 (330) Sliced Bananas and Cream...30
(285) Stewed Prunes...20 (135) Tokay Grapes...25

CHEESE

(295) Swiss...25 (100) Neufchatel...35 (320) Pimento...20 (320) Pine Island Mellow Cream...25
(75) Cottage...25 Edam...35 (110) Camembert...40 (135) Roquefort...45

BEVERAGES

Pot Coffee...15 English Breakfast, Oolong, Green, Ceylon, Orange Pekoe Tea or Japan Tea, pot for one...15
(400) Pot Cocoa...20 Kaffee Hag...25 Instant Postum...20 Iced Coffee...15 Iced Tea...15
(150) Milk, per glass...15 (80) Buttermilk...15

DESSERTS

(475) Hershey Sundae .... $ .30 (240) Pumpkin Pie .... $ .20
(300) Chocolate Eclairs .... $ .25 (475) Caramel Sundae .... $ .30
(120) Wafers .... $ .15

(90) Macaroons...15 (250) Apple Pie...15 (335) Peach Melba...30
(275) Vanilla or (300) Chocolate Eclairs...25 (320) Boston Cream Pie...25 (350) Cup Custard...20
(425) Cold Rice Pudding...25 (385) Vanilla Ice Cream...25 (500) Chocolate Ice Cream...25

Dishes in Heavy Type are Ready to Serve

Fig. 62. A la carte menu from the Kahler hotel in Rochester, Minnesota.

Left-overs. "I never plan a menu without first considering what I will do with the left-overs," said a woman chef whom I interviewed regarding the subject.

It is unwise to use too many foods that are so highly perishable that they cannot be utilized the next day.

Occasion. Special events often give the chef an opportunity to use trimmings and inexpensive meat cuts which will reduce food costs. But each occasion requires a special study. A luncheon club that is to be served each week is a special problem. A wedding party, made up of strangers, is another.

The menu-maker must consider every other factor before he can make a profitable menu for any special group.

Most authorities agree that in the large house, especially, the chef should make the menu. But there must be active cooperation between him and the steward, head waiter, and the manager. The manager and head waiter should tell the chef what kind of people are being served. The steward or manager should buy the food needed for economical preparation. The accounting department should report which dishes are selling the best—so that they can be listed more frequently.

The menu is the catalogue that sells food dishes to the consumer. Therefore, it must be attractive, readable, and understandable. It must be printed on good paper stock, in large and not too many kinds of type.

Color is always effective and so is a frequent change of menus, in size, color, shape, and style. Some hotels and restaurants change every month. Some use photographs, and many find it profitable to have "food talks" restaurant humor, or ideas that sell some other service.

Some hotels and restaurants print a message in connection with each listing. The Grove Park Inn, Asheville, N. C., does it as follows:

> *Consommé Patti.* (Freshly extracted from finest marrow bone, clarified with strictly fresh eggs, strained and served with French peas and breast of chicken.)
>
> *Baked Sea Trout.* (Received by express from Beaufort, N. C., baked in fish broth with cracker crumbs and fresh creamery butter.)
>
> *Roast Tennessee Turkey*, home-made dressing, and cranberry sauce. (Prepared by a formula of our own by which the turkeys are steamed and baked.)
>
> *Genuine Sour Milk, Bulgarian.* (Not buttermilk, but full, rich, pure, sweet milk soured by old-fashioned method in crock.)

All these ideas make menus different—and variety is the spice of life in America.

CHAPTER XXVII

STEWARD'S RESPONSIBILITIES

L. S. Hawkins, and those who assisted him in the preparation of a vocational report for the American Hotel Association, has analyzed the steward's position more thoroughly than any one I know. Therefore, I am reproducing it here:

Payroll Jobs in Steward's Department

Staff and Personnel—

Assistant steward
Food controller
Checkers
Timekeepers
Steward's bookkeeper
Receiving clerks
Silver men
Storeroom men
Pantry girls
Coffee men
Dish-washers
Glass men
Help's waiter
Express or kitchen omnibus
Garbage men
Yard men
Locker attendants
Ice men

Equipment and Supplies.

The buying of foodstuff, china, glassware, utensils, and whatever equipment is needed for the operation of kitchen, and general supplies for other departments.

Repairs and replacements which are in any way connected with the kitchen, dining rooms, and pantries.

Inspection and care of all silver, glassware, china in order that it may be in proper condition for the dining room.

Guarding against breakage and disappearance of china, glassware and silverware. This is a difficult problem if employees are not honest.

Inspection of all goods, foodstuffs, glassware, when received, so that goods are in good condition and quality up to standard.

Disappearance of foodstuffs.

Prices paid for goods and supplies received.

Upkeep of things in use.

RELISHES

Orange Mint Cup			.25
Hearts of Celery	.25	Queen Olives	.15
Sweet Pickles	.10	Sliced Tomatoes	.25
Cold Slaw	.20	Pickled Beets	.15

SOUPS

Old Fashioned Clam Chowder	.25
Chicken Soup a la Schrafft	.20

ENTREES

Ham and Egg Croquettes with Mushroom Sauce and Fresh String Beans			.75
Creamed Cauliflower on Toast			.50
Chicken Pie with Potato Cover			.65
Scalloped Oysters			.50
Fried Ham or Beech-Nut Bacon and 1 Egg .55; 2 Eggs			.70
Minute Steak			1.35
Creamed Chicken on Toast	.75	Chicken Patty	.85

PLATE DISHES

Filet of "Sea Fresh" Haddock with Hollandaise Sauce and French Fried Potatoes	.85
Breast of Chicken with Glace Sweet Potato and Curried Apple	1.35
Fresh Vegetable Dinner	.65
Roast Leg of Veal with Pan Roast Potatoes and Creamed Onions	.95
Jellied Egg with Potato Salad and Sweet Pickles	.75
Lamb Chop, Scalloped Potatoes and Fried Egg Plant	1.00

FRESH VEGETABLES AND POTATOES

Buttered Beets	.20	Creamed Cauliflower	.35
Squash	.20	Fried Egg Plant	.25
Fresh String Beans	.25	Fresh Spinach	.25
Pan Roast Potatoes	.20	French Fried Potatoes	.25
Glace Sweet Potato	.25	Hashed Browned Potatoes	.25

SALADS

Fresh Shrimp Salad a la Schrafft			.90
Hearts of Lettuce with Tomato and Beet			.60
Stuffed Date and Cheese Balls			.60
Potato Salad .35 with Cold Cuts			.85
Chopped Chicken and Vegetable Salad			.60
Fruit Salad	.50	Chicken Salad	1.00
Vegetable Salad	.50	Egg Salad	.40

BREADS—† Sold at Bake Counter

†Date Muffins			.20
Basy Bread (Reducing)	.15	†Bran Muffins	.20
Dry or Buttered Toast	.15	†Nut Bread	.25
†Bran Bread	.15	French Rolls	.10

TEA, COFFEE, CHOCOLATE

Iced Tea	.20	Iced Coffee	.20	Iced Chocolate	.25

Hot Chocolate (Luxuro, per cup)	.20;	Coffee (per cup)	.15
Coffee with Cream (per pot)	.20;	Served for two	.30
Hot Chocolate (Luxuro, per pot)	.25;	Served for two	.35
Tea, single service	.20;	Served for two	.30

Fig. 63. Luncheon menu from one of Schrafft's Restaurants. Note the varied selection of dishes.

Supervision of Work, Employees and Service.

Engages all help.

Discharges or disciplines.

Supervises all work, the manner in which employees conduct themselves, and their ability to do the work assigned to them.

Exercises watchfulness and thoroughness at all times so that everyone is economical and careful. Nothing is to be stolen, wasted, or given away.

Checks up all employees to see that they are not late and that they punch the time clock properly.

Responsible for salaries paid to employees.

Oversees all foodstuffs and dishes that pass the checker's desk to see that portions are right, proper dishes used, and foods put up in a pleasing and appealing manner.

Constant care of ice boxes; proper operation, cleanliness, and replenishing of food.

Guards against stealing by employees in kitchen and employees in other departments, such as delivery boys, maids, housemen.

Goods of any sort, such as empty barrels, crockery, waste paper, dried bread, grease, fat, swill, must be checked upon leaving building.

Responsible for cleanliness of storeroom, dish pantry, hallways, help's hall, locker room, salad pantry, ice boxes, kitchen, bakery and pastry room, glass pantry, lavatories, and all rooms in back part of house.

Directly responsible for the washing, cleaning and drying of dishes after they enter the dish pantry, and of washing, cleaning, and polishing of all silverware, condition and appearance of silverware and glassware.

Menus and prices for private parties, banquets, dinners, buffet suppers, and the like, are under the direction of the steward. In a large hotel they are in charge of the banquet steward.

Delegates instructional duties to assistant steward and heads of departments.

Cooperation.

With chef and head waiter.

With housekeeper.

Feeding of employees in department.

Securing general supplies for department, such as soap, brooms, brushes, mops, etc. *Not linen.*

With auditor.

Reporting time record of employees for reckoning pay. For checking and signing of all bills in department.

For summary report of prices paid, and prices received, showing percentage.

For sending checks to auditor on charge accounts.

Securing from management or auditor amount of overhead expenses so as to determine the amount to be charged for food.

With management.

For the purchase of equipment other than foodstuffs and minor things.

For the operation and service of entire department.

With house detectives.

For preventing loss of silverware and supplies.

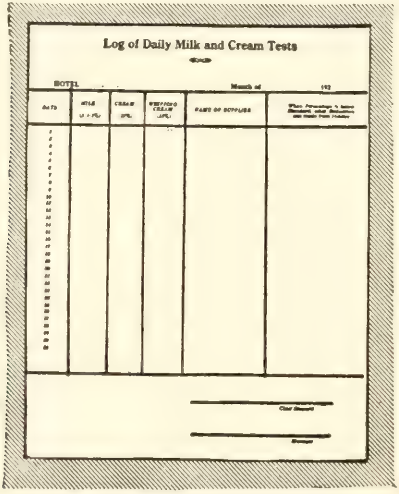
For watching questionable or suspicious conduct of employees.

With engineering department.

For minor repairs, including carpentry work, electric fixtures, plumbing, etc.

With chief clerk.

For daily house count and information of gatherings and conventions.



Log of Daily Milk and Cream Tests

HOTEL

Month of 192

DATE	MILK	CREAM	WHIPPING CREAM	NAME OF SUPPLIER	

Fig. 64. Form to be used for recording milk and cream tests. These should be made at least once each week. It is as necessary to do this as to open each crate of fruit or vegetables. For that reason, many institutions test each shipment received.

Training (Under Direction of Assistant Steward).

Method: The training is given by the head of the department in which the employee works. If the employee enters the silver rooms, he is directly in charge of the head silver man; if in the pantry, under the head pantry man. All employees learn by doing. There is no class instruction.

Result: The employee learns the work of the department and usually remains there.

Note: It frequently happens that young men enter in this way. They become interested and ambitious. By evening work they secure a broader education. They learn the work of the other departments by observation and questions. During spare times, they assist others and in a few years you find them as assistant stewards.

Occupational Analysis of Payroll Jobs in Steward's Department

Steward.

Kinds: Day steward, night steward, banquet steward.

Promotion: Promoted from assistant steward or banquet steward or head waiter.

Qualifications and requirements: A good general education.

Must have executive ability, for the whole department is responsible to him.

Much experience in a similar position.

Previous banquet experience.

Should have worked up through the department. It is usually in this order: storeroom man, checker, receiving clerk, assistant steward, and steward.

Should have a general knowledge of the duties in detail of every employee in the back of the house.

Must be acquainted with the different dish-washing machines, also the different silver-cleaning machines, and know how to operate them.

Should know the different kinds of dishes, often how they are prepared, whether they are properly garnished, proper ingredients used and whether they are put up in proper fashion.

Should have a general knowledge of all cooking. He need not be an expert in any particular branch of cooking, but he should know how all dishes are prepared.

Know the work jobs of every man under him, in order to supervise his work properly.

Know how to care for foodstuffs, vegetables, fruit, celery, berries, and melons to the best advantage.

Know when various fowl and fish are in season and out of season, also fruit and vegetables, so that they can be secured in time.

Know how to make good coffee, good fruit and vegetable salads.

Know the different brands of canned and bottled goods.

Know wholesale prices of food in the open market.

Knowledge of foreign languages is helpful as many employees are foreigners.

Know the difference between good and poor service.

Honesty and integrity are essential.

Duties:

Equipment and Supplies: Buys foodstuffs, groceries, meats, poultry, fish, china, glassware, crockery, silverware and various utensils such as pots and pans used for the operation of the kitchen; also general supplies such as ammonia, cleaning powder, paper, twine, mops, brooms, brushes, soap, pitchers, and lavatory supplies.

Compares prices of various dealers and buys standard quality at lowest price.

Keeps a constant check on the foodstuffs received and food consumed.

Insists upon supplies being issued only on requisition, and proper charges made, exercising care that not too much is issued at one time.

Keeps in constant touch with the general market condition in order that new goods can be obtained as soon as they are in season.

Supervision of Work and Personnel: Engages all help—advertises for help.

Assigns them to duty.

Discharges help or disciplines same.

O. K.'s all time cards for payroll purposes.

Revises constantly the bill of fare, to add new dishes, eliminate others, according to season, or give it an appearance of freshness and newness. This may be done by the chef.

Determines the price to be charged for the different dishes on the bill of fare.

Makes out a portion sheet.

Checks and O. K.'s all bills and invoices after goods are received, to see that prices, quality, and quantity are as they should be.

Signs all contracts with his employees.

Cooperation: Between the steward, the chef, and the head waiter there must be constant and close cooperation. The departments are so closely connected in the buying, preparing, and serving of food, that, unless harmony exists, the work in the back of the house is a failure.

Records: Keeps a daily record of goods purchased and goods sold, prices paid and prices received. Where a food controller is employed, this is part of his duty.

Makes a monthly report to the management of things bought and things consumed, showing all expenditures, receipts, losses, supplies on hand, etc.

Keeps a time book, with names of employees, addresses, wages, and dates when employed.

Keeps a record of all complaints, that at the end of the month he knows the number and kinds of complaints.

CHAPTER XXVIII

CHEF'S RESPONSIBILITIES

"How important is the chef in a hotel?" is the question that is often asked when I am among people who know nothing about institutional kitchen life.

"One of the two most important department heads in the house," is my reply. And I believe that he can make his position as big as he wants to. It all depends on the man. Today the chef must be more than a head cook. He must be a progressive business executive. I know such chefs. They are quiet, soft spoken, cordial, thoughtful, and clean cut. Their kitchens run with the smoothness of a large executive organization. In many cases these chefs receive a salary larger than the managers.

The following outline covers the chef's department in hotels. However, it is so thorough that it can be adopted for chefs in all institutions. The report is the work of L. S. Hawkins, representing the Federal Board for Vocational Education. It was made for the American Hotel Association.

Payroll Jobs in Kitchen

Chef, night chef, banquet chef
Second cook and assistants
Roast cook and assistants
Round cook and assistants
Fry cook and assistants
Garde manger and assistants
Carver
Pastry chef and assistants
Baker and assistants
Butcher and assistants
Vegetable cook and assistants
Pot-washers
Firemen

Chef. The kitchens that were surveyed for this part of the report were managed by two different kinds of chefs. The first may be classed as a chef-steward—one who has complete control of the kitchen, pantries,

Plate 37. The modern chef and steward realize that they must forget petty jealousies and work together to a common goal—good food sold at a profit. Cooperation between these important executives is the most essential factor in economical and profitable operation. Mr. Hayfield is the steward and Mr. Cretaux the chef—both at the Roosevelt in New York City.

Plate 38. The modern chef has more to do than supervise cooking. He must seek constantly to invent new dishes that will make his cuisine famous. This shows Mr. B. Allevi in the Perfecting Kitchen at the Savarin Restaurant at the Pennsylvania Station in New York.

and ice boxes. He makes out the bill of fare and purchases the supplies. He is hired directly by the management and is not responsible to the steward. The second is a supervising chef, one who controls the kitchen as far as the preparation of food is concerned, but the marketing and purchasing of supplies, the pantries, ice boxes, and the bill of fare are in charge of the steward. In this case the chef is responsible to the steward.

The powers delegated to a steward, chef, or head waiter depend largely upon the employee's ability and the service he renders. In some houses the steward has complete control. All "back of the house" employees are responsible to him. In others, the work may be so divided between the chef and head waiter that the steward holds a position of minor responsibility.

The supervising chef, who is responsible to the steward, is mainly considered in this report.

Kinds: Chef, night chef, banquet chef.

Promotion: Promoted from second cook to night chef, to banquet chef, to chef. If no night and banquet chef are appointed, the second cook is next to the chef.

Qualifications and Requirements: Ten to twenty years' experience in different positions in kitchens.

Knowledge of the principles of elementary chemistry. This may be acquired by apprenticeship.

A student of food and of kitchen operating expenses.

Knowledge of elementary bookkeeping.

Common-school education—know arithmetic. English. In many hotels, French, German, and Italian are required.

Know the different qualities of food, the game laws, and the foods that are in season.

Know the market price of supplies at all times.

A man of good judgment and capable executive.

Clean, efficient, honest, economical.

Pride in work. A desire to please and serve.

Duties and Responsibilities:

Staff and Personnel:

Night chef
Banquet chef
Second cook and assistants
Round cook and assistants
Roast cook and assistants
Fry cook and assistants
Garde manger and assistants
Pastry chef and assistants
Baker and assistants
Butcher and assistants
Vegetable cook and assistants
Pot washers
Firemen

Equipment and Supplies: Food is ordered or requisitioned by chef and bought by steward.

Utensils and other supplies are purchased the same way.

Where a purchasing agent exists, the chef may notify him directly.

Such supplies as are always kept in the storeroom are bought by the steward when the stock is low and when needed in the kitchen are received by requisition.

Supervision of Work and Personnel: Supervises the preparation of food.

Outlines the policy of the kitchen.

Plans the meals.

Engages the help.

Disciplines and discharges.

Prepares the bill of fare.

In preparing this, many things are considered: kinds of dish, equipment of kitchen, food in season, varieties and combination of food, etc.

Order bill of fare printed.

Order supplies from steward by requisition.

Controls the ice boxes.

Inspects the left-overs to determine their fitness for use.

Responsible for cleanliness.

Instructs assistants and green help. This may be done by second cook.

Send a daily report to auditor and food controller.

Charge of banquets and special occasions.

Inspection of Kitchen: As the health authorities of city and state require a certain degree of cleanliness, inspections are made regularly. The grading depends on the following inspections:

Toilets—cleanliness and ventilation, plumbing.

Utensils and devices—repairs and cleanliness.

Copper pans that are not properly tinned may cause food to become poisonous.

Employees—clean garments, medical card.

Storage of food.

Ice boxes—clean, good condition, drainage.

Garbage cans—clean, closed.

Floors, walls, windows, tables clean and in good repair.

Kitchen free from insects and flies.

Cooperation:

With steward.

Preparation of food.

Methods of serving food.

    - Checking food.
    - Receiving food and supplies from storerooms.
    - Delivering size of portions and price asked.
    - Kinds of menu.
    - Rectifying complaints regarding service or food.
    - Kitchen equipment.
    - Wages and number of employees.
    - Operating expenses.
    - Breakage.
    - Special requirements of patrons.
    - Banquets.
    - Buying supplies and materials.
  - With engineer.
    - Repairs and inspection of mechanical devices.
    - Plumbing.
    - Inspection and repair of motors.
    - Carpentry.
  - With printer.
    - For the desired type and size of bill of fare.
  - With head waiter.
    - Complaints of service and food.
    - Preparation of food.
    - Bill of fare.
    - Special dishes.
    - Banquet service.
  - With auditor.
    - Making of reports.
- *Records:* Food and supplies ordered.
  - Food and supplies received.
  - Cost of food and supplies.
  - Number of prepared dishes that can be made from a certain quantity of food.
  - Price charged.
  - Food used.
  - Shortage.
  - Number of complaints and kinds.
  - Portion sheet.
  - Market list.
  - Book of receipts.

CHAPTER XXIX

JOB ANALYSIS—STEWARD'S DEPARTMENT

There are quite a few stewards each of whom buys over a million dollars' worth of merchandise a year. In addition they are responsible for the products until they have been delivered to the kitchen, or in some cases until they are taken into the dining room.

The steward has more of an opportunity than the chef to learn about other sections of the house. As a result many of our best managers were once stewards. Here they learned the necessity for "watching the little things." According to L. S. Hawkins, the steward's department is organized as follows:

Assistant Steward.

Kind: Pantry steward, kitchen steward or kitchen controller.

Promotion: Promoted from receiving clerk or head storeroom man, or purchasing agent to steward.

Qualifications: Equivalent of common-school education.

Experience in every payroll job in the department. The most important of which are storeroom man, checker, and receiving clerk.

Duties: This man is in direct charge of all employees. He instructs directly or through department heads. He designates the hours employees are on duty and provides substitutes for absent ones. His first inspection in the morning is usually the employee's dining room. Then the coffee and salad pantries, the bake shop and the kitchen, to see that food is on hand and ready to serve. The dish, silver and glass pantries are then examined to see that everything is clean and in order.

Inspects washrooms, locker rooms, storerooms, ice rooms, garbage cans, etc.

Most of this man's time is spent in supervising and directing work.

Orders may be given in writing.

Responsible for behavior and proper conduct of employees.

Guards against stealing.

Cooperates with engineer for repairs on kitchen and pantry equipment, machines, motors, urns, heaters, etc.

Keeps close watch of checkers, that every item of food that goes out of kitchen is properly checked and charged.

Guards against putting silverware into garbage cans.

Keeps record in a separate book of what is served every day, how many portions, how often per week, and the demand for it. The greater the demand the more often per week the dish is prepared.

Keeps a record of breakage and loss of food, charging department responsible for it. Eliminates waste and leaks.

Responsible for sufficient number of dishwashers, expressmen, yard men, and the like. The more important jobs, as checker, receiving clerk, pantry girls, are filled by the steward directly.

In absence of steward, he has charge of department.

Food Controller.

Qualifications: Same as receiving clerk.

Duties: Keeps an accurate record of everything bought under the name of food and the price paid for it. A record of everything sold in the food line and the price received for it. The record is usually kept on a large sheet.

After food controller receives the bill he records on the sheet the kind and quantity bought and the price paid for it. After the food is sold to the guest, the price received for it as shown by the checks is recorded. In this way he can tell the percentage made and trace the loss of food.

Record sheets are made out every day or every other day, depending upon the size of hotels.

The food is charged to the different departments using it, as the kitchen proper, pantry, pastry and ice cream, bakery, dining room, employees. The last item on the sheet is the sum or recapitulation. Besides containing the daily food prices, moneys paid and received, the record sheet contains the sum of all previous days for the month. Thus on the 20th of April the sheet indicates the price paid for pork for the whole month, the department using it, and the sum received according to the portions sold.

Checkers.

Kind: Kitchen controller, head checker, captain checker, checker.

Note: Men or women.

Promotion: Promoted from pantry man or storeroom man to checker, head checker, receiving clerk, to assistant steward.

Qualifications: Honest.

Experience, one year, two years.

Common school education with a good memory.

Know different kinds of dishes.

Know the price of each dish. This he obtains from the bill of fare.

Know proper portion and quality.

Know proper plate to be used with food served.

Duties: Watches every waiter that goes in and out of the kitchen, as well as everybody else, to see that all food taken is accounted for.

Checks every article of food leaving kitchen. No food leaves kitchen without being checked.

Puts amount of each item on the check with machine. The amount he obtains from the bill of fare. Waiters are thus prevented from overcharging or undercharging. He does not foot the amounts. This is left for the cashier in dining room.

Sees that portion and quality are right, for frequently waiters try and obtain a larger portion or even two portions for a guest who is liberal with his tips.

Proper plates must be used with the food served. Discourages special service to particular individuals and always sees that the service is the best and cleanest that can be obtained for everyone.

Frequently in filling an order of meat, the waiter gives the order to the checker. The checker makes out order, signs it, and sends it to butcher, so that waiter may obtain it for cook.

Assigns checks to waiters according to number.

Hands checks to waiters, keeping an exact record of the number of checks for each waiter and the check number. This work may be done by cashier in dining room or a head checker. After meal is served unused checks are returned to checker.

Receiving Clerk.

Kinds: Receiving clerk, assistant clerk, bookkeepers, and helpers.

Promotion: Promoted from assistant clerk, storeroom man, or checker. Promoted to food comptroller or assistant steward.

Qualifications: Common school education, a little bookkeeping and simple arithmetic.

Know the different kinds and brands of canned and bottled goods.

Know the different kinds and quality of other foodstuffs.

Know the difference between good and poor supplies.

Know the particular type of goods which is necessary for the house.

Duties: He receives all supplies purchased by the steward, which he must weigh, measure, or check.

He examines the goods to determine whether the quality, quantity, and price are right. If a mistake has been made, it must be rectified before the goods can be accepted.

If accepted, the bill is received with the goods and a record made of the kind and quantity received. This is done in a book or on a sheet. The bill is checked and sent to the steward for signature and then routed to the auditor.

The goods and supplies are sent to the storeroom or ice boxes.

As the supplies are received, a record is made in duplicate on a sheet. At the end of the day, one sheet is sent to the auditor and the other is kept on file in the office of the receiving clerk.

If the supplies in the storeroom or ice boxes are low, or if a certain department needs supplies, a triplicate order is made. One is kept by the department ordering it, one is kept by the receiving clerk, and the other is sent to the steward.

Goods received must be the same as the goods ordered.

If any changes occur at the time of receiving, a credit memorandum is made in duplicate, one is sent to the auditor, and the other given to the party delivering the goods.

Not only are the steward's supplies received by the receiving clerk, but also general supplies for the housekeeper, engineer, or other departments.

Steward's Bookkeeper.

Promotion: From storeroom man; promoted to receiving clerk.

Note: The steward's bookkeeper and the storekeeper's bookkeeper are frequently the same person.

Qualifications: Equivalent to a common school education, a knowledge of simple bookkeeping and arithmetic.

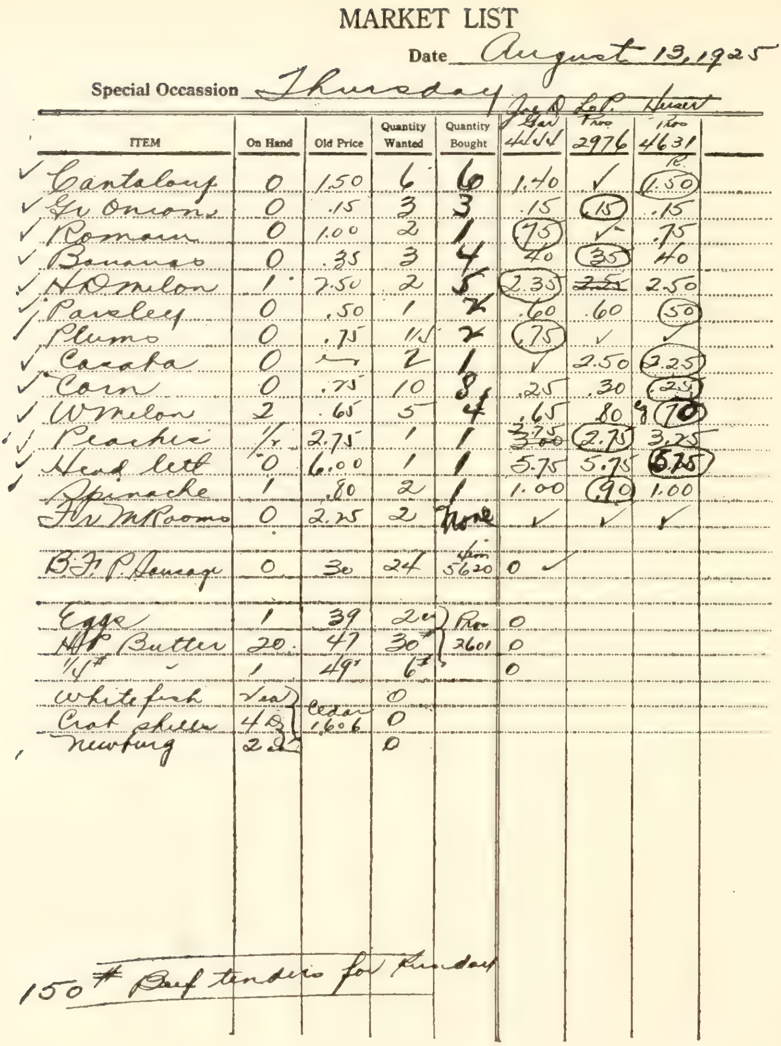
Some experience in kitchen work. He should have a knowledge of the work in the pantry checking system, and general details of the kitchen.

Duties: Receives all the requisitions from the storeroom man, charging each commodity thereon to the department receiving the goods.

Keeps a record of everything received by the receiving clerk and stores in the ice boxes and stockrooms.

Keeps a perpetual inventory, adding to this as goods are received and deducting from it as goods are given out. By this inventory a constant check is held over the storeroom and ice boxes so that any shortage can be discovered immediately. By virtue of this constant checking as to both price and quantity, the bookkeeper will notice instantly any discrepancy which may come in due to lost or misplaced requisitions. Shortage of requisitions may be due to carelessness or negligence on the part of the storekeeper, or may be caused by some department getting goods in a rush, promising requisitions later and forgetting them.

Assists in the work of the other departments.



MARKET LIST

Date August 13, 1925

Special Occassion Thursday

ITEM	On Hand	Old Price	Quantity Wanted	Quantity Bought	Joe D Gar 4455	L.o.P. Pro 2976	Hessert Pro 4631
✓ Cantaloup	0	1.50	6	6	1.40	✓	R. 1.50
✓ Gr Onions	0	.15	3	3	.15	.15	.15
✓ Romain	0	1.00	2	1	.75	✓	.75
✓ Bananas	0	.35	3	4	.40	.35	.40
✓ H D melon	1	7.50	2	5	2.35	~~2.5~~	2.50
✓ Parsley	0	.50	1	2	.60	.60	.50
✓ Plums	0	.75	1/5	2	.75	✓	✓
✓ Casaba	0	–	2	1	✓	2.50	2.25
✓ Corn	0	.75	10	8	.25	.30	.25
✓ W melon	2	.65	5	4	.65	.80	9 .70
✓ Peaches	1/2	2.75	1	1	2.75 ~~3.00~~	2.75	3.25
✓ Head lett	0	6.00	1	1	5.75	5.75	5.75
✓ Spinache	1	.80	2	1	1.00	.90	1.00
Fr Mushrooms	0	2.25	2	None	✓	✓	✓
B.F.P. Sausage	0	30	24	Jim 5620	0 ✓		
Eggs	1	39	24	Pro	0		
H P Butter	20	47	30#	2601	0		
1/4#	1	49	6#		0		
Whitefish	Sea	Cedar	0				
Crab shells	4 D	1606	0				
Newburg	2 D		0				

150# Beef tenders for Sunday

Fig. 65. Steward's market list. Prices are obtained from the various dealers and the lowest bidder gets the order, provided of course that the standard of quality comes up to the demands. In some houses such lists are used for each food classification such as fish, meat, etc.

Timekeeper.

Qualifications: Reliable and honest.

Equivalent of a common-school education.

Duties: Prepares contract between employee and hotel, and has employee sign it.

Issues time cards, properly numbered, to employees and keeps a record of same.

Makes all employees, especially those who comprise the rough labor, punch a time clock upon entering and leaving the house

Watches employees leaving house to see that they do not carry goods away that do not belong to them. If packages are carried, they must be examined if not stamped O.K. by their department head.

Halts strangers entering department to find out whom they wish to see and what they want.

Checks and verifies by signature the time record of employees for payroll purposes.

Assists paymaster on pay day and at other times when employee desires to draw against his salary.

Storeroom Man or Storekeeper.

Kinds: Storekeeper, assistant storekeeper, bookkeeper, helpers.

Promotion: Promoted from helper to assistant storeroom man to storekeeper, or clerk in front office.

Qualifications and requirements: Know the various sizes and quality of goods.

Know how to take care of perishable goods.

Must know where each article is kept so that he can secure it quickly on request.

Experience, one year, work similar to grocery man.

Equivalent to a common-school education.

Must know at all times how much food is in the storeroom, what kind of food, and where it is.

Duties: Receives all goods after the receiving clerk is finished with them.

Stores everything in the proper place in the storeroom or ice boxes. Definite rules are followed in doing this; canned or bottled goods may be arranged alphabetically, small cans in front of large ones, old stock in front of new stock, etc.

Keeps a perpetual inventory. A careful record of the time, kind and quantity of goods received, and the time, kind, and quantity of goods issued out. This is done by the storekeeper's bookkeeper or steward's bookkeeper. They are frequently one and the same person.

Issues all goods from the storeroom and ice boxes to other departments on requisition.

Carefully weighs out foodstuffs or measures out liquid food, bought in bulk.

Notifies the steward or the steward's bookkeeper when the amount of any commodity is getting low.

Responsible at all times to the steward for goods in charge.

Cleans storeroom, assisted by yard man or helper.

Close cooperation exists between the storekeeper and steward.

Silver man.

Kinds: Head silver man, silver man, and helpers.

Promotion: Promoted from helper or dish-washer to silver man. The head silver man is usually not promoted to any other work. It takes time to train him, and when he is trained he usually remains there.

Note: A few institutions of the larger size do their own electro-plating and have their own silversmith.

Qualifications: Know how to pack and run a silver-cleaning machine. Speak English.

Several years' experience as a helper in the silver room.

Duties: Washes, cleans, and polishes all silverware, such as platters, covers, pots, bowls, knives, forks, spoons, etc. Knives, forks, and spoons are cleaned every night so that they are ready for use in the morning. Other articles such as platters, covers, pots, bowls, etc., are cleaned and polished on schedule. One day of the week is set aside for pots, another day for covers, another for platters, etc.

Cleans and polishes all trays.

Packs and operates machine.

Keeps a record of the number of each kind of ware that goes in and out of his department.

Helpers carry the tray with the silverware from the dumb-waiter to the silver room.

Cleans the silver room.

Keeps tables, benches, troughs, and shelves clean.

Cleans machine.

Responsible for the proper appearance of all silver.

Pantry Girls.

Kinds: Pantry girl, salad girl, coffee girl, assistant pantry girl. Promotion from assistant pantry girl to pantry girl to checker.

Qualifications: Clean, neat, economical.

Experience, several months necessary under proper direction to make salads properly.

Honest, so that they will not attempt to exchange things with cooks in the kitchen.

Ability to make salads quickly after order is received.

Know how to clean fruit, vegetables, such as lettuce and celery.

Peel oranges, grapefruit, and the like and do so in a minimum amount of time.

Know how to make all fruit and vegetable salads, salads that look appetizing and taste delicious.

Know the amount per portion to be served.

Know the proper dishes used for serving of the different salads.

Duties: Order from the storeroom and ice boxes fruit and vegetables required. The pantry is charged with the vegetables and fruits used.

Clean the fruit and vegetables used.

A certain quantity of fruit and vegetables will make a certain number of portions, the size of which is determined by weight.

This portion sheet is made by the steward.

The head pantry man is held responsible for supplies issued to him.

They frequently serve the coffee. They do not make it.

Make the dressings that go on the salads, French, mayonnaise, etc.

No cooked vegetables are handled by them.

Prepare breakfast fruit.

Dish out the butter and serve the bread and rolls.

Serve all salads.

Serve such items as cheese, grapefruit, oranges, jams, etc.

Keep pantry and pantry refrigerators clean.

Coffeeman.

Kinds: Coffeeman, assistant coffeeman and helper.

Promotion: Promoted from dishwasher to assistant coffeeman, to coffeeman. A good coffeeman is usually not given another place. It takes time to train him and he is expected to remain there.

Qualifications: One to two years' experience as assistant.

Ability to make good coffee, tea and cocoa.

Clean, careful, economical.

A steady and reliable man, one that will stick to the job.

Should take pride in making good coffee.

Enough English to understand instruction.

Duties: Prepares coffee, tea and cocoa.

Warms milk and makes toast. Toast is frequently made by a cook in the kitchen.

Regulates his work in the making of the coffee so that the liquid in the urn will not stand more than 45 minutes at a time, for coffee held longer becomes stale and bitter.

The coffeeman and pantry girls are usually working side by side, and in small houses one woman does the work of all.

Serves the coffee, tea, cocoa and milk.

Serves the bread, rolls, and butter. This is frequently done by the pantry girls.

Frequently assists the storeroom man.

Takes care of the urns, is at all times responsible for the operation of the gauges, for tight valves and connections.

Cleans the inside and outside of urns daily, so that the urn is kept in a sweet and wholesome condition. Twice a week the coffee urn is cleaned by bicarbonate of soda.

Polishes the urns.

Cleans place around which he works.

Glass Man.

In some places the glass man is a regular dishwasher, whereas in others there is a glass pantry and some experience is required.

Qualifications: No experience. Can be told how to do the work.

Duties: The details of this man's duty differ, depending upon the size, equipment, location, and department. In some the glass pantry is part of the dish pantry, while in others the glass pantry is separated and away from the dish pantry, where the glasses are washed separately.

The glass man gets the tray containing glasses and teapots from the dumb waiter or dish-pantry man.

Washes glasses. Rinses them. Dries them. Puts them on shelf ready for use of waiter or bus boy.

Cleans floor, shelves, closets, tables, sinks and faucets of glass pantry.

Help's Waiter.

Kind: Waiters and waitresses for second and third class officers and employees served in the kitchen (first-class officers are served in dining room).

Qualifications: No experience—waitresses of employees are usually of foreign extraction, because of the menial characterization of the work. For second-and third-class officers, enough English to understand orders and directions.

Duties:

Officers' waiter:

Gets checks from checker.

Obtains order.
Writes order on checks.
Orders the food in the kitchen.
Obtains food and checks it out in the regular way.
Serves the food.
Clears dishes away and puts them in the dish pantry.
Cleans tables and benches.
Employees' (rough labor in each department):
Food for employees is delivered in bulk from the kitchen and served out in family style.
Clears table and takes dishes to pantry table.
Cleans tables and benches.
Cleans help's hall room.

Dish Washers.

Kind: Head dish-washer, dish-washers, and helpers.

Note: In large houses the head dish-washer cares for and operates the machine, cleans and oils it, and makes all mechanical repairs.
He directs all washing and cleaning.
Instructs help to prevent breakage.

Qualifications: No experience is needed for helpers or dish-washers. Care in handling dishes is required. Men must be able to follow directions of head dish-washer. Process should be learned in a few weeks. For head dish-washer, experience is necessary, and a little mechanical skill.

Promotion: Helper, dish-washer, operator, head dish-washer.

Duties: Makes soap-and-water solution.
Cleans the remains from dishes.
Puts remains in barrels or garbage cans.

Note: Experience is here required.
Dishes are taken and dried as they come from machine or are put in heater for drying.
Dishes are taken from heater and put on shelves, for use of waiters, cooks, etc.
Dishes of the same kind are always piled together.
Cleans tables and floor about them.
Cleans machine and entire pantry.
Constant care in handling dishes.
Cleanliness of dish towels and clothing on person must be maintained.

Express or Kitchen Omnibus.

Qualifications: No experience is necessary; enough English to understand directions.

Duties: Takes clean dishes after they are dried by dish-washers or heaters and returns them to their place on pantry shelf or kitchen at a place where they are convenient for the next employee to use them. Service must not be interrupted for lack of dishes.

Carries and delivers goods to and from storeroom ice boxes, kitchen and pantry as ordered, on requisition by the department using goods.

Assists the work of the glass man, dish-washer or yardman.

This man is "jack of all trades" and does any work that he can and is directed to do.

This work may be done by one or more of the other helpers that comprise the rough labor in the steward's department.

Locker Attendant.

Qualifications: No experience—a responsible man willing to work and keep things in an orderly condition can be taught in a week's time as to duties and how to perform them.

Duties: Keeps each locker in a good working condition and intact.

Responsible for all keys to lockers and issues them to employees for a nominal charge.

Issues one key for each locker.

Keeps a record of the name of each worker and number of locker and key assigned to him.

Collects keys in case an employee resigns or is discharged.

Guards against loss of keys and the possibility of some one getting a key to a locker not his own.

Keeps locker room clean.

Keeps lockers clean. Guards against accumulation of soiled clothing.

Fumigates room and lockers when necessary.

Keeps washroom clean, sanitary, and in proper condition.

Cleans washbowls, lavatories, and urinals.

Supplies washroom with soap and paper towels.

The work of this man is frequently combined with the ice man or yard man.

Garbage Man.

Promotion: Promoted to dish-washer.

Qualifications: No experience is necessary. Willing to work and follow directions. It takes but a few days to tell the employee what to do and do it correctly. Foreigners with little knowledge of English are employed for this work.

Duties: Takes the barrels with the swill or garbage from the dish pantry to the incinerator.

Empties the garbage from the barrels at night and rakes over the swill to find any china or silverware that may be in it and removes it.

Replaces swill in cans or burns it in incinerator.

Returns empty barrels to kitchen and dish pantry.

This man does odds and ends.

The work of yard man and garbage man is frequently combined in one person.

Yard Man.

Qualifications: No experience is necessary—can be taught in a week's time. Directions are given by an experienced yard man or one of the assistant stewards.

Duties: Cleans, sweeps, and scrubs the floors, kitchen, and hallways.

Fills the fire pails with water.

Takes the barrels with rubbish and broken bottles to the incinerator.

Replaces filled barrels with empty ones.

This is the general clean-up man.

In a small house, the work of this man, together with that of the garbage man and locker attendant, is done by one man, or the work of the yard man and ice man may be combined, or the yard man and locker attendant.

This man does odds and ends.

CHAPTER XXX

JOB ANALYSIS—CHEF'S DEPARTMENT

THE business of being a chef is the business of being an organizer. Even a hurried study of his responsibilities reveals that part. It shows also that without team work the best chef is certain to fail. It is humanly impossible for him to personally prepare an appreciable amount of food. His reputation for good cooking is as good as his ability to organize. And before he can organize, he must know how, why, where and when a man must work.

The schedule following is another from the report by L. S. Hawkins:

Second Cook.

Kinds: Second cook, assistant second cook.

Promotion: Promoted from roundsman, or roast cook, or garde manger to second cook, to chef.

Qualifications: Eight to ten years' experience in cooking.
Economical—an eye for beauty and a desire to render service.
Know the essentials of a good soup, how it is made and how kept.
Know all sauces, how to blend and season them.
Know the making of entrees.

Note: It would take from three to four years to train a young ambitious man in this work.

Duties: Prepares all soups—chicken, consommé, brown stock, cream, etc.
Prepares all sauces—white, brown, cream, etc.
Prepares all potted meats, as pot roasts and meats that come under the entrée service.
All high-class and fancy dishes.
Responsible for the finishing touches of all orders.
In administration he is next to the chef and during his absence does his work, assumes his responsibilities, and controls the kitchen.

Roast Cook.

Kinds: Roast cook, serving roast cook, assistant roast cook, broilers, carvers.

Promotion: Promoted from assistant butcher to assistant roast cook, to roast cook, to second cook.

Qualifications: Five to eight years' experience in cooking.

Know the kind of fish in season.

Know the proper portion to be served and the proper platter to be used.

Note: It will take an ambitious young man three years to learn the work.

Duties: This man roasts and broils all fish in season and all poultry, as chicken, turkey, geese, ducks, pigeons, game birds, etc.

He roasts and broils all beef, veal, mutton, lamb, pork, bacon, ham, etc. Steaks and chops of all kinds. Prepares gravy from roasts. He serves all dishes he prepares.

In a house that does not employ a carver, he may carve the meat he prepares.

The assistant roast cook assists in serving and in cooking for the help. In the roast cook's absence, takes his place. One to two years' experience is necessary to become an assistant roast cook.

Fry Cook.

Kinds: Fry cook, assistant fry cook.

Promotion: Promoted from vegetable man, to assistant fry cook, to fry cook.

Equipment and Supplies: Food to be fried in fat.

Pans and long forks.

Frying baskets and heavy kettle.

Uniform of cap and apron.

Qualifications: Three to four years' experience to become a good fry cook.

Know material and utensils.

Note: In training an ambitious young man, two years is required.

Duties: This man does all the frying, whether it be fish, meat, or poultry. He prepares the eggs and omelets, and fries the potatoes. Prepares breakfast.

a. Cooks and serves the cereals.
b. Prepares the meat and eggs.
c. Everything that enters the pan with grease.
d. Pancakes.

Cooperates closely with second cook.

The assistant fry cook cuts the vegetables, assists in serving, and in preparing breakfast, etc.

Roundsman.

Kinds: Roundsman, assistant roundsman.

Promotion: Promoted from either fry or roast cook to assistant roundsman, to roundsman, to second cook.

Duties: This employee has no definite work assigned to him. He is what his name implies, doing the "rounds," and takes the place of a regular absent cook. He must, therefore, be a fry cook, roast cook, or garde manger, as the occasion may demand. He is not as expert a cook as the regular one, but must know the work of all of them. To fill this position he must have served his apprenticeship in many capacities and is in direct line for the position of second cook.

Garde Manger (Cold-Meat Chef).

Kinds: Garde manger, assistant garde manger, service man, carver.

Promotion: Promoted from butcher or vegetable man to assistant garde manger to garde manger.

Qualifications: Six to eight years' experience to learn trade.

Economy and honesty essential.

Know how to carve.

Use good judgment in the cutting of proper portions.

Know how to make dressings, salads, appetizers, etc.

Note: It will take from three to four years to train a man for the work of garde manger.

Duties: Cuts and serves the cold meat.

Prepares the cold meats that are served with sauces and hands them to the second cook.

Makes all cold meat sandwiches. This is frequently done by one of the assistants.

Uses the left-overs of the other departments and where possible makes a dainty and palatable dish. It is usually done by means of salads and croquettes.

Makes all salads in which meat enters as an ingredient, such as chicken and lobster, also cooked vegetable salads. Fancy salads are his specialty.

Makes all salad dressing, such as mayonnaise, Russian, French, etc.

Raw meats and fish are cut into proper-sized portions by this man. These are held ready for order.

Prepares larding pork.

Prepares the appetizers or the first course in a course dinner, such as olives, caviar, sardines, etc.

Inspects the ice boxes in his department and is responsible for their cleanliness.

The assistant garde manger assists in serving and making sandwiches, cutting portions, etc.

Cooperates constantly with the pantry and second cook.

Sometimes the pantry girls who make the fresh fruit and vegetable salads come under the supervision of this chef.

Pastry Chef.

Kinds: Pastry chef, assistant pastry chef, second assistant pastry chef, helpers.

Promotion: Promoted from helpers to assistant pastry chef to pastry chef.

Qualifications: Equivalent to a common-school education.

Eight years' experience.

Economical, honest, clean, ambitious, and pride in work.

Know the underlying principles of elementary chemistry.

Know the difference between good and poor flour, flavoring extracts, butter and oleomargarine, etc. Simple tests may be applied.

For the process of baking understand the proper temperature of the ovens, know the best ingredients, their proper mixture, etc.

Must be a good decorator and have an eye for beauty.

Duties: Outlines the work of his assistants and the policy of his department. The greater the number of assistants, the more the work is specialized.

Makes and bakes all pies, fancy pastry, and cakes, and decorates the same. Makes the icing.

Prepares puddings, sauces, custards, jellies, ices, and ice creams, etc.

Prepares the compotes, as stewed prunes, rhubarb, peaches, pears, etc. This work is frequently delegated to an assistant.

Uses surplus fruit from the other departments frequently in the form of cakes and puddings.

Prepares the bill of fare, indicates the price to be charged and hands it to the chef or steward.

Serves the things he prepares. In doing so he determines the size of the portion or the number of cuts.

Checks and examines all supplies issued to him. He keeps a record of everything that leaves the department.

Assistant Pastry Chefs.

The assistant chefs perform the same duties as above outlined for pastry chef, under the pastry chef's direction. They do most of the rough work, such as beating eggs, working the dough, cleaning

and preparing the fruit, firing the ovens, cleaning the utensils, etc.
They assist in serving, assort the pastry on the tray, make waffles, griddle cakes, cook fruit, make puddings, etc.
One of the assistant pastry chefs has charge of the ice cream.
Prepares mixture and puts it in the can.
Cracks or chops the ice and packs it in box.
Freezes the cream and removes cream to serving room.
Serves cream. Proper portion must be known.

Baker.

Kinds: Baker, assistant baker, helper.

Promotion: Promoted from helper, to assistant baker, to baker, to pastry room.

Qualifications: Five years' experience as an assistant.
Clean and economical.
Knowledge of supplies used, kinds of flour, yeast, mixing machines, types of ovens.

Supplies and equipment: Baking ovens, proofing ovens, bread mixer, dough troughs, benches, trays, pans, trucks, tables, etc.

Duties: Responsible for and supervises the making of the bread, rolls, and muffins.
Regulates the fire to obtain the proper temperature.
Makes the dough.
Keeps a record of supplies received and rolls and bread issued.
An assistant starts the fire, works the dough, and cleans the tables, dishes, pots, pans, floor. He carries supplies from storeroom and bread to warming ovens. An assistant should have a few years' experience.

Butcher.

Kinds: Head butcher, assistant butcher, poultry butcher, fish butcher, scullion, or helper.

Promotion: Promoted from helper or vegetable man to assistant butcher to head butcher.

Qualifications: Cleanliness, honesty, and economy are essential.
From four to eight years' experience is necessary to learn this trade.
Should know how to keep his own records, cut meat to the best advantage, pickle meat, cut meat in proper portions, and know something of the anatomy of a carcass.

Duties: Checks and places in the ice boxes all meats as they come from the steward's department. This is done in a definite order so that the various kinds can be located quickly.

He cuts the meat into proper portions for the use of other departments.

He has charge of all the poultry and fish, cleans, cuts, and dresses them, and sends them to the department ordering same.

He sometimes opens oysters.

He keeps the refrigerators filled with sufficient meat. If his stock of meat is low, he notifies steward.

In some houses he does all the carving. In others the carving is done in the department using the meat.

He bones, prepares, and ties meats for roasting and broiling.

Responsible for all fats and bones from the meats during trimming. Records of fats and bones are necessary to determine profits.

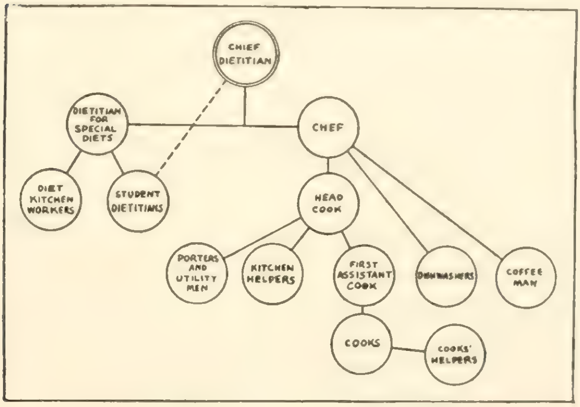


Fig. 66. A type of organization which has worked well in a 500-bed hospital.

Responsible for the cleanliness of tables, floors, blocks, and meat boxes. His stock of meats and equipment should be in a good condition.

Has charge of keys to butcher shop and meat refrigerators.

Responsible for the amount of meat charged to him. He, therefore, keeps a record of everything that goes in and out of the shop.

In the absence of the head butcher, the assistant butcher has charge. He is particularly responsible for cleaning the tables, floor, and utensils used and the cleaning and preparing of fish and poultry. Little experience is necessary to start the work as assistant butcher.

Vegetable Cook.

Kinds: Vegetable cook, assistant vegetable cook, or vegetable-cleaner.

Promotion: Promoted from vegetable-cleaner or assistant vegetable cook, to vegetable cook, to head vegetable cook or fry cook.

Qualifications: Six months' experience necessary.
Understand the food value of vegetables.
Cleanliness and economy.

Note: Not much attention has previously been given to vegetable-cooking, but a general feeling exists that more time, greater importance, better qualifications should be demanded.

Duties: Cleans, prepares, and cooks fresh vegetables.
Some vegetables are prepared for other cooks.
Cooks cereals.
Serves the food he prepares.
Usually responsible to the fry cook, as he prepares most of the vegetables the fry cook uses.
The vegetable cleaners (men or women) assist the vegetable cook and perform the rough work, as washing and peeling of potatoes, cleaning of spinach, ice boxes, and parts of the kitchen and tables.

Pot-Washer.

Promotion: Promoted from pot-washer to vegetable-cleaner or dish-washer, to assist fry cook.

Duties: Washes the pots and pans and puts them back in place ready for the cooks. Cleans steam table, steam kettles, and other utensils.
Cleans the gas ranges and shines them up.
Sweeps and scrubs the floor of kitchen, cleans tables.
Does general cleaning and repair work.

Fireman.

Qualifications: Should know how to make a fire, care for it and bank it. Little experience necessary.

Duties: This man takes care of the coal fire in the ranges. Gas and electricity, however, have displaced coal to such an extent that the position of fireman exists only in few places.
Makes and cares for the fire.
Cleans the stoves, polishes them.
Strains the soups, prepares meat for consommé, grinds up dry bread and crackers, chops parsley, etc., for the second cook.
Is a "handy man" around place and performs odd jobs.

CHAPTER XXXI

EMPLOYEE MANUALS

The value of employee manuals cannot be overestimated. They help present employees do more and better work, and for the new employee—well, what can you expect but ignorance and inefficiency if nothing is done to teach new workers?

Never, in any of the kitchens in which I have been employed, was anything done to teach me how to do more efficiently the work for which I was hired. True, a half-literate human being did usually tell me what to do. In a few hours I realized that, even with years of experience, he knew less about the job than some of the newcomers.

Perhaps it is true that most kitchen employees cannot read English. But those who can should be given an opportunity to do their work more efficiently.

Those who can't read can understand pictures, or learn by seeing another person doing the work correctly. The time is not far distant when motion pictures will be used to educate kitchen employees. Until that time each new employee should have as a teacher one who *knows* his job.

There are several reasons why manuals are necessary. Each year more of the employees learn to read. By putting into printed or typewritten form the duties of each man, a great deal is learned about that job. If manuals were read only by department heads, they would still be of value. How can a department head *teach* unless he knows what to teach?

The manual for each employee should be based on a job analysis. Not a detail should be left to the imagination. Assume that the employee has no imagination.

The following are examples of what employee manuals should contain:

Steward's Manual. House policy; policy on menu listings; policy on publicity; when inventories must be taken; the amount of authority he is granted; standards of food quality; days for inspection; house organization chart and how he fits into the general scheme; work schedules for his department; copies of special rules for employees in his department; daily schedules for the week; hours; vacation schedule; days off; weekly meetings; accounting forms; office methods; recommended employment agencies; companies with whom business should be done; cleaning schedules; house policy on menu-making; use of left-overs; waste; first-aid instructions; location of fire-extinguishers and alarms; departmental costs, etc.

Chef's Manual. Departmental organization chart; house policies, such as use of left-overs; standardized portions; use of waste, etc.; schedule of days off; record of costs; hours of operation in each dining room; suggestions for prevention of fire, waste, graft, theft, noise, etc.; care of equipment; office procedure; menu standards, etc.

Cook's Manual. Policies; hours; vacations; dress and personal sanitation; standardized menus and portions; care of equipment; how to save on food, fuel, light, water, ice, and condiments; how to prevent theft and waste; policy on left-overs; safety first; division of duties; fire prevention; requisition regulations; dishes to be used for service; how to prevent breakage and reduce noise; how to guard against rats, mice, and insects; how to requisition food, etc.

Storeroom Manual. Policies; hours for issues; vacations; dress and personal cleanliness; how to receive goods and check invoices; how and where to store foods; how to issue foods; how to save on light and supplies; how to prevent waste; care of equipment; where to find all products; how to prevent breakage and theft; how to guard against rats, mice, and insects; how to maintain proper temperature for different foods; how to keep inventory and make out reports; which foods to weigh out in advance; accounting methods, etc.

Pantry Girl's Manual. Policies; hours; vacations; dress and personal sanitation; standardized portions and recipes; how to make coffee, tea, and cocoa; how to garnish; how to cut bread, butter, cheese, etc.; how to save on food, supplies, ice, water, light, and fuel; how to cooperate with cooks and waitresses; care of equipment; how to guard against rats, mice, and insects.

Dish-washer's Manual. Policies; hours; vacations; dress; proper way to scrape dishes; safety first; what to do with waste and left-overs; most efficient way to sort stock and put dishes through machine; how to care for the dish-washing machine; how to save on water-cleaners and soap; how to prevent breakage and noise; where to store clean glasses, silver, and china.

Porter's or Yard Man's Manual. Policies; hours; vacations; dress and personal cleanliness; how and when to clean; how to save on soap, water, brushes, cleaning compounds, and polishes; how to reduce noise; care of mops, pails, brushes, etc.; safety first; how to requisition for supplies; how to guard against rats, mice, and insects.

Baker's Manual. List of standard baked products used in the house; how to requisition for materials; hours of work; vacations; standards of quality; standardized portions; how to save on gas, electricity, water, supplies, etc.; care of equipment; safety first; how to keep records; sanitation and vermin prevention; etc.

Butcher's Manual. How to check, control and issue meats; standardized portions; how to care for equipment; refrigeration chart; care of ice boxes; sanitation and vermin prevention; use of left-overs, bones, scraps, etc.; hours of work; safety first; vacations; economy; etc.

Vegetable Cleaners. Best way to clean vegetables; how to prevent waste; sanitation; hours; vacations; care of equipment; safety first; etc.

Coffee Man's Manual. Coffee standards; how to prevent waste of coffee, tea, cocoa, milk, cream, water, steam, and fuel; hours; dress; vacations; safety first; care of equipment; etc.

Silver Man's Manual. Proper method of cleaning; how to save on materials and supplies; hours; vacations; sanitation; safety first; care of equipment; how to check and control silver; etc.

Garbage Man's Manual. How to rake garbage; sanitation; how to save supplies; care of equipment; safety first; hours; vacations; uniforms; return of silver; etc.

E. M. Statler uses standardized instruction cards that conform quite closely to manuals. As an example:

INSTRUCTIONS TO PANTRY GIRLS

1. Report for duty on time.
2. Wear regulation uniform and cap. See that both are neat and clean.
3. Station must be in order and supplies ready for service before beginning of each meal.

4. Repeat all orders given to you by waiters and waitresses. Prepare dishes carefully and promptly.
5. In refrigerators, for the storage of fruits, vegetables, and other foods, standard containers only are to be used. The use of miscellaneous items of chinaware, glassware, and silverware for this purpose is not permitted.
6. Follow carefully printed instructions for coffee-making.
7. *Butter*—Don't cut too much of it ahead. See that stock is kept in a separate compartment of the refrigerator.
8. Before closing at night see that supplies are in order for the morning watch; refrigerators locked, coffee urns emptied and cleaned, and steam and gas shut off.

Avoid Waste—Practice Courtesy

Several restaurants and hotels use general instruction cards for bulletin boards and elevators. In some cases they are printed in several languages.

Manuals do not solve all problems. Aids to their success are:

(1) Weekly meetings at which the department head listens to complaints and suggestions. Costs, methods, problems and general ideas about work in that department are discussed frankly and freely. Reports of each meeting are sent to the manager.
(2) A library containing literature covering the duties of kitchen employees.
(3) A lecture course with picture slides or motion pictures. These should be open to all kitchen employees.
(4) An open invitation for employees to discuss problems with department heads.
(5) A prize or bonus for suggestions that cut costs or increase efficiency.

These are but examples. Each house has different problems, and these should be covered in detail in manuals.

Manuals save time for department heads, reduce waste, increase efficiency, and decrease labor turnover. Many industries, much smaller than institutions, have proved the value of printed instructions. You have nothing to lose, and a great deal to gain by taking advantage of this scientific way to educate employees.

CHAPTER XXXII

KITCHEN MANAGEMENT—A SCIENCE

"I CONSIDER the industry's greatest present need to be ambitious young men—young men who are willing to begin the journey at the bottom and climb to the heights one step at a time. The place for them to start is in the back of the house—not the front—down in the receiving room, where the food comes in.

"The young man should first learn how to buy goods advantageously and how to sell them profitably. One step at a time, he should proceed from the steward's department to the chef's and thence to the dining room. The ambitious young man should spend some time as a waiter, for in no other way can he learn more quickly and surely how to please people. If he has an agreeable personality and an honest desire to serve his guests to the best of his ability, he will stand on the threshold of success after a term spent at the desk in the front office."

OSCAR—of the Waldorf.

Several thousand leaders in hotels, restaurants, clubs, and institutions started at the bottom of the ladder in the "back of the house." Many of them are now in the $10,000 a year group. The young man with this practical training, plus a well-rounded general education, is certain to succeed. The following example indicates the value of such special training.

Two years ago, the owners of a large metropolitan hotel decided to make their property return a better rate of income. So they let it be known that a new manager was wanted. Over three hundred applications were received. Out of this number, four were given consideration. All of the four were men who knew the "back of the house," through practical experience. The man selected for the job more than doubled the profits the first year. Most of it came from food sales.

While making a study of his organization, and others that have been unusually successful, I learned that the chef and steward were the most important factors. In at least two cases the general managers stated this publicly.

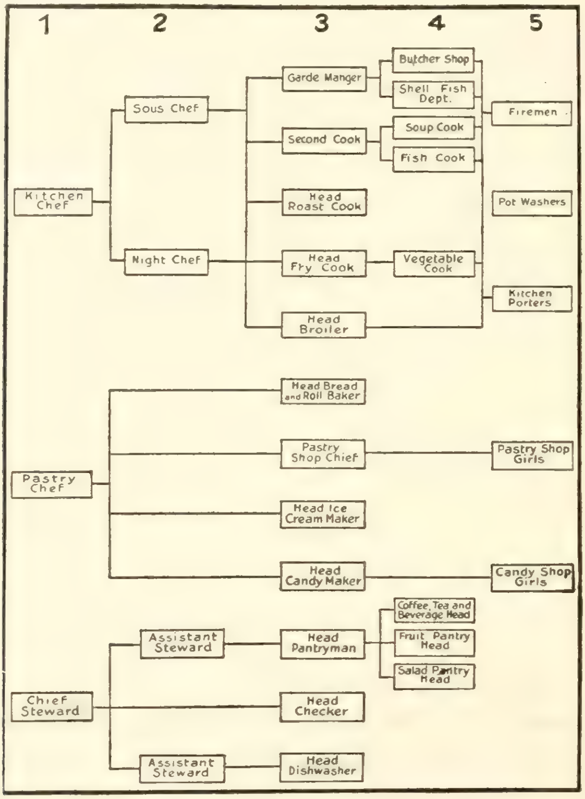


Fig. 67. Layout of kitchen responsibility in a large hotel.

Subsequent visits proved that the chefs and stewards in these houses are modern business men, but they never lose sight of the importance of detailed supervision. As an example, take this schedule followed by E. C. Hayfield:

SCHEDULE FOR AN AVERAGE DAY

7:30—Check over ice boxes; study temperatures; look over requisitions; inspect department.
8:30–11:30—Inspect incoming merchandise and see salesmen.
11:30–12:15—Luncheon with chef and maitre d'hôtel, at which time he talks over food-service problems.
12:15– 1:45—Remain in kitchen to watch service.
1:45– 3:00—Go over market lists and orders for next day. Take care of correspondence and office routine.
3:00– 5:30—Take walk.
5:30– 6:15—Dinner with chef and maître d'hôtel.
6:15– 6:45—Check over menus for next day.
6:45– 8:30—Remain in kitchen to watch service.
When banquets are in progress, he seldom leaves before 9:30.

A well-known chef submits the following as his daily schedule:

My working day begins at 7:30 A.M., when I reach the hotel.

At 8 A.M. there is brought to me the staff report for the day. If there are absentees, provision is made for the proper performance of the work.

Check-up on all ice boxes which I do personally. This so I may know exactly what material is on hand and just how to work it up advantageously. The supply must be kept *ever fresh* and yet giving that infinite variety the public likes.

Making out all menus for the following day. Attached to the menus is the recipe and complete formula for the preparation of every item. These must be followed to the letter.

Conference with the steward as to the next day's supplies.

Check-up with the *sous* chef to see that all orders have been carried out.

An inspection trip through the kitchens for such supervision, suggestions, advice, etc., as may be necessary.

By this time, soup and entrées for the noonday luncheon are ready for a rigid censorship.

When business starts I want to be at the steam tables so that I may be sure that every guest gets what he wants in the way he wants it.

After the luncheon rush is over comes a brief conference with the manager to note any suggestions he may have to offer, observations in the dining rooms, etc.

If necessary, a brief meeting with the food controller for an analysis of any item that may be showing erratic tendencies.

Ascertain the progress and perfect the final details of the day's affairs extraordinary—dinners, banquets, and so on, and to look ahead a little to the necessities of the coming day.

Dinner. The procedure is, of course, very similar to that of luncheon.

The final duty of the day: Checking up and approving the requisitions on the storeroom, presented by the *sous* chef, fry cook, cold-meat man, pantry and pastry shop.

One of the disputed questions in large houses is that regarding the division of authority in kitchens. Some European hotels solve it by having two managers—one for the front and the other for the back of the house. Some American hotels solve it by having an assistant manager in charge of the food department. In such cases he has authority over the dining rooms, kitchens, and storerooms. The steward, chef, and maître d'hôtel are his department heads.

This assistant manager has usually come up through the different divisions of the kitchens and dining rooms. Therefore, he knows the details of every job. Daily meetings with his department heads make the food division as efficient as other sections of the house.

Costs. Old-time chefs and stewards fought anything that looked as if it might hamper them in the expression of their art. The "green-eyed monster" was always around the corner. It was almost impossible to get a chef to tell how he made some of his master dishes. Costs and accounting were twin bugaboos, that had the taint of commercialism.

But times have changed. Cooking is still an art, but it has become a business of art for mart's sake. The modern chef is glad to share his experience to the advantage of others. He studies costs because he realizes that this is a new age in which his success is all the greater because he is half artist, half business executive.

Kitchen executives seldom have much to do with

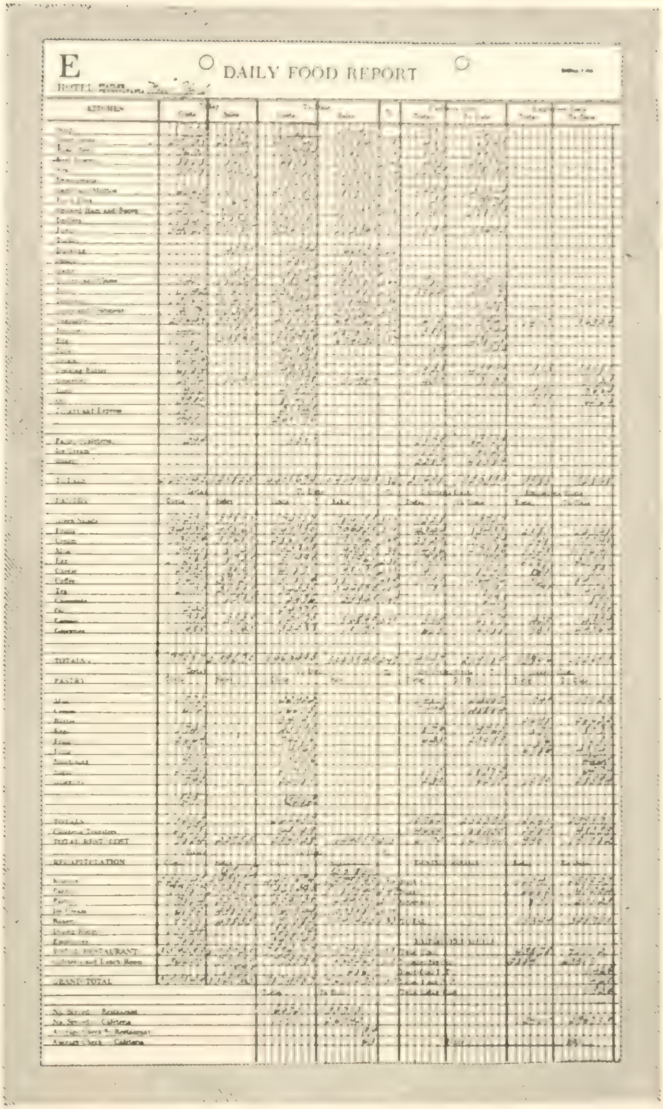
		HOTELS				RESTAURANTS		
	Average	1000 Rooms	400 Rooms	150 Rooms	Large Cafeteria	Medium Class Restaurant	High Class Restaurant	Small Lunch Counter
Meat	33.78%	36.06%	31.19%	33.81%	28.11%	44.37%	31.57%	31.32%
Vegetables, Potatoes, Salads and Fruits	15.52	15.01	16.21	17.03	21.95	13.40	12.25	12.80
Milk and Cream	7.12	5.35	9.82	6.76	4.90	5.55	8.53	8.94
Fish, Lobster, Oysters	7.65	10.94	6.97	6.60	4.77	9.12	8.71	6.45
Eggs	3.49	3.22	2.90	4.99	.68	1.42	6.68	4.56
Cereals	.27	.11	.24	.32	.....	.....	.34	.82
Coffee	3.50	2.67	2.10	3.81	4.44	2.36	4.00	5.14
Tea	.44	.22	.75	.36	.69	.27	.41	.41
Cocoa and Chocolate	.15	.04	.09	.08	.19	.03	.09	.50
Butter	6.01	8.14	6.90	6.02	5.91	4.51	5.96	4.63
Bread, Pastry and Ice-Cream	15.40	8.32	16.70	13.43	22.02	12.50	15.22	19.59
Oil, Sugar, Vinegar, Pepper, Lemons and	3.43	3.82	3.64	2.66	2.53	3.77	4.31	3.30
Miscellaneous	3.24	6.10	2.49	4.13	3.81	2.70	1.93	1.54
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Fig. 68. Ratio of individual food costs as prepared by Horwath and Horwath.

establishing a system of food-cost accounting. However, they can suggest such systems in houses where none is being used, or cooperate with the accounting department when the system is used in their house.

In my book, *Restaurant Management,* Louis Toth, C.P.A., Horwath and Horwath, wrote about food cost accounting as follows:

> The purpose of food-cost accounting or food control is to keep the cost of food consumed at the lowest possible point consistent with the policy of the management as to quality and size of portions. Food control should not be confused with checking systems. Checking systems are designed to safeguard the sales, while food control aims to control the cost.
>
> While a food-control system may, and often does, bring out the fact that portions are unreasonably large, it is not the aim of such a system to reduce cost by reducing portions. Above all, a food-control system should never be allowed to go so far as to cause any lowering of the quality of the materials used. No food-control system is needed for reducing the cost by lowering the quality.
>
> The moral effect of the installation of a food-control system often results in reducing the cost a considerable extent, but the system cannot of itself produce the desired result any more than a good road map can drive an automobile. Food control does, however, give the timely warning as soon as the cost turns in the wrong direction and it points out where and how to turn for the right road. It is then up to the management to take the necessary action.
>
> In order to ascertain the percentage of food cost daily, the following information must be available:
>
> 1. The cost of food purchased and delivered to the kitchen and to other producing departments (direct purchases).
> 2. The cost of food issued from the storeroom.
> 3. The amount of the sales.
>
> Supplementing this information by the cost of food purchased and delivered to the storeroom, a daily summary cost record may be combined with a storeroom control.
>
> **Basic Records.** There are certain records that are not necessarily parts of the food-control system, but must be available as a basis of the detailed cost records. The sales must be recorded in detail on itemized waiters' checks which serve as the basis of the sales analysis. Even



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DAILY FOOD REPORT

Fig. 69. Every chef and steward should be interested in food cost accounting.

where club breakfasts or other *table d'hôte* meals with optional dishes are sold, the waiters must record the dishes served in detail.

There must be itemized, daily, requisitions and a daily record of goods received and available on which to base the analysis of cost. The ideal arrangement is to receive all goods at the storeroom and to issue them on requisitions as needed. It is more often the case that perishables are delivered directly to the kitchen, as the storeroom has no facilities for storing them. In such a case the record of the goods received must be so arranged as to show separately the cost of goods received and delivered directly to the kitchen, called "direct purchases," and the cost of goods delivered to the storeroom, called "storeroom purchases." Requisitions still will be necessary, of course, as a record of the goods issued from the storeroom.

The First Principle of Present-Day Food Control. With these basic records available, present-day food control proceeds on the principle that it is more practical to analyze the sales to correspond with the logical groups of raw materials than to allocate the cost of materials to each of the numerous dishes sold. As an example, it is easier to divide the selling price of a planked steak among short loin, vegetables, and potatoes, and credit each of these groups with its logical share of the selling price, than to find out the cost of the vegetables, potatoes, and raw meat that were used in the preparation of planked steaks.

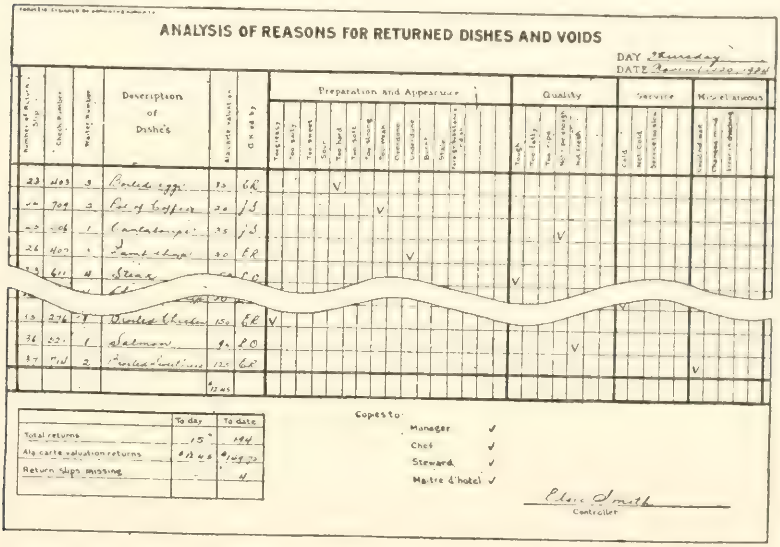
It is not the primary goal of the generally accepted system of food-cost accounting to find out, for instance, what an order of ham and eggs cost, but rather to determine how much is received for eggs or for ham, regardless of what form it is sold in. The reason for this is that it is a comparatively easy matter to find out, for example, the cost of all the eggs used in the kitchen each day and then determine the return for eggs by applying logical principles to the analysis of the sales. But it would be an impracticable, if not impossible, task to obtain reliable records from the cooks as to the number of eggs used for each of the dishes of which eggs are an ingredient. Similarly, in order to find out each day what planked steaks cost, it would be necessary to calculate the cost of meat, vegetables, and potatoes used in their preparation, which would require constant measuring, weighing, and recording in the kitchen while the work is going on. It is obvious that such a cost system would be impossible to operate.

The first principle of present-day food control is, therefore, that the units separately controlled are based on a logical grouping of raw materials and not on groups of ready dishes.

For the purpose of control the kitchen is divided first into departments: the kitchen proper, pantries, pastry shop, bake shop, and ice-cream shop. The dining-room butter, which does not go through any manufacturing process, is controlled separately.

Within each department the materials used are divided into easily distinguishable groups and the sales are analyzed accordingly.

Analysis of Cost. As has been already pointed out, the daily cost is based on the direct purchases and on the issues from the storeroom. It is, of course, essential that no materials be issued from the storeroom without a written requisition signed by the head of a department or his assistant. It is important that the requisitions be specific as to quantity, quality, and size, so as to leave no doubt as to the cost of the materials issued.



ANALYSIS OF REASONS FOR RETURNED DISHES AND VOIDS

DAY Thursday
DATE [illegible]

						Preparation and Appearance													Quality					Service			Miscellaneous		
Number of Return Slip	Check Number	Waiter Number	Description of Dishes	A la carte valuation	O K'ed by	Too greasy	Too salty	Too sweet	Sour	Too hard	Too soft	Too strong	Too weak	Overdone	Underdone	Burnt	Stale	Foreign substance in dish	Tough	Too fatty	Too ripe	Not ripe enough	Not fresh	Cold	Not cold	Served too slow	Couldn't wait	Changed mind	Error in ordering
23	403	3	Boiled eggs	15	ER					V																			
24	709	2	Pot of coffee	20	JS								V																
25	[illegible]	1	Cantaloupe	35	JS																	V							
26	407	1	Lamb chops	80	FR										V														
[illegible]	611	4	Steak	[illegible]	CO														V										
35	276	[illegible]	Broiled chicken	150	ER	V																							
36	521	1	Salmon	90	EO																		V						
37	[illegible]	2	[illegible]	125	ER																						V		
				$12.45																									

	To day	To date
Total returns	15	194
A la carte valuation returns	$12.45	$149.70
Return slips missing	–	4

Copies to:
Manager ✓
Chef ✓
Steward ✓
Maitre d'hotel ✓

Elsie Smith
Controller

Fig. 70. The chef wants to know the reason why foods are returned.

The requisitions are priced at cost on the basis of the store records, the total cost of each item is calculated, each requisition is totaled, and then the total cost of the issues is determined by summarizing the requisitions by departments. It is often necessary to use interdepartmental requisitions for recording such transfers as, for instance, flour from the bake shop to the kitchen.

All requisitions are delivered to the food-cost accountant, who also receives a copy of the receiving record. As a matter of precaution all invoices for the purchases recorded on the receiving sheets are also delivered to the food-cost accountant, who compares them with the receiving record and then stamps each invoice with a rubber stamp showing the date, thus indicating that the invoice has been entered on the cost records. If the bookkeeping department receives any invoice without this stamp, the invoice is first referred to the cost accountant for investigation. The result of this procedure is that the cost records will include all proper charges to the cost of food.

The food-cost accountant analyzes the cost by entering each item of direct purchase and issue on a "Distribution Sheet for Daily Food Cost." This sheet is so arranged that the cost of each group forming a unit of control may be conveniently summarized on it. At the same time, it contains all the information necessary for a further and more detailed analysis of each group.

The cost for the day is summarized in the first column of the "Daily Report."

Analysis of Sales. The sales are analyzed on the basis of the itemized waiters' checks, usually after they have been audited. Each item appearing on the waiters' checks is recorded on a "Distribution Sheet for Daily Food Sales." The dishes sold are gouped on this sheet so as to conform to the cost analysis. The number of portions is recorded by drawing a vertical line in the wide column following the name of the dish, in groups of five, every fifth portion being indicated by drawing a line across the four vertical lines already recorded. After all the waiters' checks have been analyzed in this manner, the total number of portions sold of each dish is entered in figures in the "Portion" column, and the total selling price in the "Amount" column.

Combination dishes are recorded in the groups of the main ingredient. Eggs and bacon, for instance, are classified under "Eggs." After the total sale of bacon and eggs has been determined and entered, the selling price in excess of the price of the same number of portions of fried eggs is inserted in red in the "Transfers" column after eggs and bacon, and also in black in the same column after "Bacon" in the group of "Provisions Miscellaneous (Pork)." This latter entry represents the price received from the bacon and it is deducted from the total sales of eggs and bacon, thus arriving at the amount of sales of eggs, which is entered in the "Net Sales" column. On the other hand, the same amount is added to the sales of bacon.

The analysis of the sales of *table d'hôte* meals and of banquets requires a thorough knowledge of the ingredients and their relative costs, and also a knowledge of the sizes of portions served.

The distribution sheet for daily food sales also contains the necessary details for further analysis, as well as the total sales of each group. The group totals are entered in the second column of the daily report.

The Daily Report. The first two columns of the "Daily Report" contain the cost and sales for the day in detail. The report also informs the management daily of the accumulated cost and sales in detail from the beginning of the month. The percentage of gross profit on cost, disclosed by the up-to-date totals, are indicated to facilitate a quick review of the operations by the management, percentages of gross profit on cost being used so as to bring out more forcibly the fluctuations in gross profit.

If any group fails to show the desired result, corrective measures are taken. Should further information be necessary for this purpose, the cost and sales of the particular group are compiled and presented in greater detail on a supplementary report.

In addition to the detailed record of the cost and sales for the day and up-to-date for the month, the daily report contains such pertinent information as the number of covers served, the number of pounds, and the total number of pieces of dining-room butter consumed and the average number of pieces per cover, the number of rolls used per cover, the selling value of executives' meals, the cost of food issued to the employees' hall, and so forth.

Of course, the total cost reported for the day must be the same as the total of the direct purchases and requisitions, while the total sales must agree with the sales as per the audited cashier's sales records.

It will be noted that the inventories of food in the kitchen and in other producing departments either at the beginning or at the end of the day are not taken into consideration in determining the daily cost. To this extent the daily cost figures are not exact. Experience shows, however, that after the first few days of the month have elapsed the difference in the kitchen inventories from day to day is too small to affect the practical value of the up-to-date cost figures. Furthermore, the taking of daily inventories not only would be too costly, but it necessarily also would delay the preparation of the daily report and make it impossible to take corrective measures promptly. Thus, while the cost figures would be undoubtedly more accurate, the use of daily inventories would detract from the practical value of the system rather than add to it.

The Monthly Report. The information compiled and accumulated in the daily report is supplemented and adjusted at the end of the month and the final analysis of the cost and sales for the month is presented to the management in a more detailed monthly report.

Inventories are taken at the end of each month in the storeroom as well as in the producing departments. At the same time the book value of the storeroom inventory is determined by adding the storeroom purchases to the beginning inventory and deducting the issues from the total. Any appreciable difference between the book inventory and actual inventory is investigated, so that the cost records may be properly adjusted. If the difference is negligible, it is applied to the cost in the monthly report as a separate item under the name of "storeroom difference."

The monthly report shows the exact cost of each group after the coin accumulated daily is adjusted by the difference in beginning and ending inventories of the producing departments, which are analyzed in the same manner as the daily cost. After these adjustments have been made, the total cost and sales are compared with the corresponding ledger accounts and any difference is investigated and adjusted. Thus the total sales and cost reported in the monthly cost report must be always in accordance with the profit-and-loss statement.

A schedule in the monthly report is devoted to the unproductive items, such as cooking butter, lard and its substitutes, milk, cream and groceries used for cooking, etc. Obviously it would not be practical to credit part of the selling price of the various dishes to these ingredients, so the economy in their use must be judged on a different basis. This basis is the ratio of the cost of each of these unproductive items to the total sales of the department in which they are used.

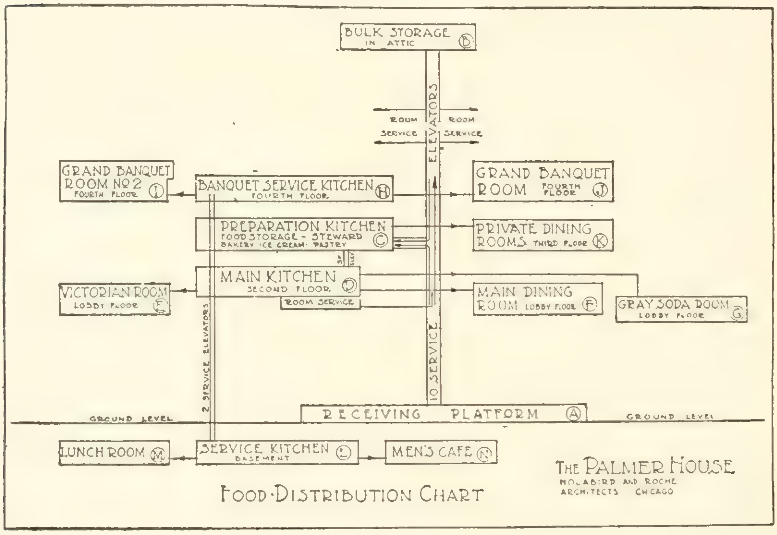

BULK STORAGE IN ATTIC Ⓑ
ROOM SERVICE
ROOM SERVICE
ELEVATORS
GRAND BANQUET ROOM Nº 2 FOURTH FLOOR Ⓘ
BANQUET SERVICE KITCHEN FOURTH FLOOR Ⓗ
GRAND BANQUET ROOM FOURTH FLOOR Ⓙ
PREPARATION KITCHEN FOOD STORAGE - STEWARD BAKERY ICE CREAM - PASTRY Ⓒ
PRIVATE DINING ROOMS THIRD FLOOR Ⓚ
MAIN KITCHEN SECOND FLOOR Ⓓ
ROOM SERVICE
VICTORIAN ROOM LOBBY FLOOR Ⓔ
MAIN DINING ROOM LOBBY FLOOR Ⓕ
GRAY SODA ROOM LOBBY FLOOR Ⓖ
2 SERVICE ELEVATORS
10 SERVICE
GROUND LEVEL
RECEIVING PLATFORM Ⓐ
GROUND LEVEL
LUNCH ROOM Ⓜ
SERVICE KITCHEN BASEMENT Ⓛ
MEN'S CAFE Ⓝ
FOOD·DISTRIBUTION CHART
THE PALMER HOUSE
HOLABIRD AND ROCHE ARCHITECTS CHICAGO

Fig. 71. An interesting chart showing food distribution in one of the largest hotels in America.

The total cost of food on which the percentage of profit is based, in the daily use as well as in the monthly reports, includes the cost of food consumed by employees. The reason for this is that little practical control can be exercised on the transfers from the producing departments for consumption by the employees, and thus the percentage of profit could be easily influenced by manipulating these transfer records. The cost of employees' meals, however, is calculated in the monthly report as accurately as practically possible.

Thus the monthly food-cost report is a detailed analysis of the food sales, cost, and gross profit shown in the profit-and-loss statement, giving the management all the necessary information as to why the results are not satisfactory, if that should be the case, at the same time pointing out the direction in which the remedy lies.

The steward's department keeps an accurate record of purchases, prices paid, goods received, and those issued, merchandise and food in stock, etc. Almost every operation must be recorded and the records forwarded to the accounting department.

The chef's department also comes in for its share of accounting and administration. The chef must understand food-cost accounting. He and the steward must be one when it comes to keeping costs at a minimum and quality at a maximum. The value of such cooperation is shown in the following excerpt from a letter written by a steward:

> The chef and I cooperate on the purchase of food. He knows the quantity he must have; I know when to buy and how much to buy. This is where sheets, showing the comparison of price, come in handy. I keep one, and the other goes to the chef. In this way he knows just how much I pay for everything that he uses in the preparation of salable dishes. In no other way would it be possible for him to price dishes fairly.

Getting Ahead. "Chefs and stewards of foreign birth cannot expect to get ahead unless they make themselves a part of American life. They must speak and read English. They should read books and magazines about their own work. Chefs especially should associate more with Americans outside of the food industries. How else can they expect to know what people want?" said the general manager of four hotels.

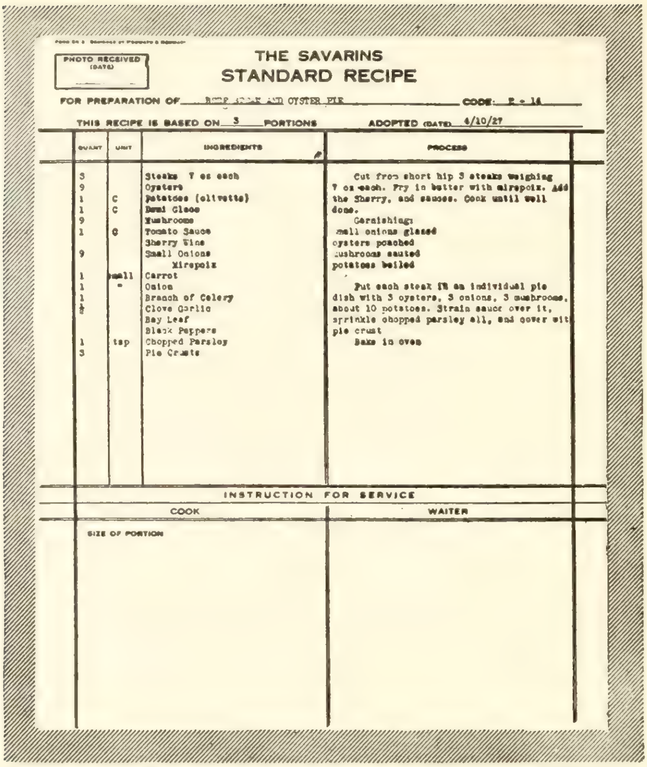


PHOTO RECEIVED (DATE)

THE SAVARINS
STANDARD RECIPE

FOR PREPARATION OF BEEF STEAK AND OYSTER PIE CODE: E - 14

THIS RECIPE IS BASED ON 3 PORTIONS ADOPTED (DATE) 4/10/27

QUANT	UNIT	INGREDIENTS
3		Steaks 7 oz each
9		Oysters
1	C	Potatoes (olivette)
1	C	Demi Glace
9		Mushrooms
1	C	Tomato Sauce
		Sherry Wine
9		Small Onions
		Mirepoix
1	small	Carrot
1	"	Onion
1		Branch of Celery
½		Clove Garlic
		Bay Leaf
		Black Peppers
1	tsp	Chopped Parsley
3		Pie Crusts

PROCESS

Cut from short hip 3 steaks weighing 7 oz each. Fry in butter with mirepoix. Add the Sherry, and sauces. Cook until well done.

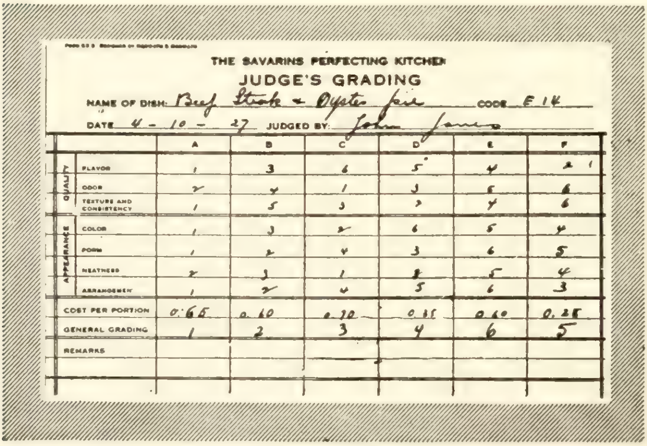
Garnishing:
small onions glased
oysters poached
mushrooms sauted
potatoes boiled

Put each steak in an individual pie dish with 3 oysters, 3 onions, 3 mushrooms, about 10 potatoes. Strain sauce over it, sprinkle chopped parsley all, and cover wit pie crust

Bake in oven

INSTRUCTION FOR SERVICE

COOK	WAITER
SIZE OF PORTION	



THE SAVARINS PERFECTING KITCHEN

JUDGE'S GRADING

NAME OF DISH: Beef Steak & Oyster Pie CODE E 14

DATE 4 - 10 - 27 JUDGED BY: John James

		A	B	C	D	E	F
QUALITY	FLAVOR	1	3	6	5	4	2
	ODOR	2	4	1	3	5	6
	TEXTURE AND CONSISTENCY	1	5	3	2	4	6
APPEARANCE	COLOR	1	3	2	6	5	4
	FORM	1	2	4	3	6	5
	NEATNESS	2	3	1	2	5	4
	ARRANGEMENT	1	2	4	5	6	3
COST PER PORTION		0.65	0.60	0.70	0.35	0.60	0.25
GENERAL GRADING		1	2	3	4	6	5
REMARKS							

Fig. 72. The standardized recipe and the judge's grading card used in connection with the Savarin Perfecting Kitchen.

There is a great deal of truth in this statement. The difficulty is in finding time to do so. Therefore, reading is the one sure way to keep in touch with new developments—and they are coming rapidly. The past year has been especially productive.

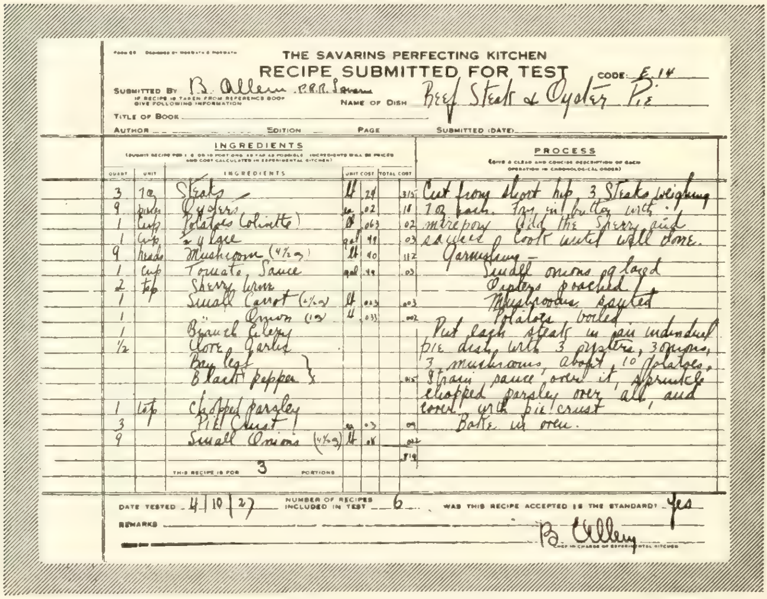
Savarin Perfecting Kitchen. The first step in the program for this kitchen has been the standardization of recipes, so that a specific dish made in Pittsburgh has the same palatable flavor as the one made in Philadelphia or New York. This is how the results are obtained:

A tabulation of the most popular dishes served in each Savarin unit, each of the Boomer-Dupont hotels, and from the Sherry restaurants (all under the direction of L. M. Boomer) is sent to the supervising chef and his committee. From these lists he selects the one having the largest sale. Naturally it is good business to perfect and systematize the part of one's business from which there is the greatest revenue.

After selecting the best-selling dishes, the supervising chef gets from the chef in each unit his recipe for preparing each of the popular dishes. Next, the former takes from his files and library every other recipe for the same dish. From these he selects six for a practical test in the "perfecting kitchen."

These six dishes are made at the same time. When cooked and ready for service, each dish is given a symbol—A, B, C, and so on. Now they are ready for the testing board, or committee. This is made up of ten to twelve executives in the company and also of cooks from the main kitchen. Each tester (and taster) has before him a score card on which he can express his opinion. Each score card shows the cost of the dish. It is obvious that two dishes often taste the same. If there is a slight difference in cost the lower-cost dish should get the high score. I assume the individual members of the testing board act accordingly.

The supervising chef studies all the reports and makes the final selection. The recipe so selected is stamped with a mark of approval and adopted as standard for all Savarin restaurants.



THE SAVARINS PERFECTING KITCHEN
RECIPE SUBMITTED FOR TEST
CODE: E. 14

SUBMITTED BY B. Allen P.R.R. [illegible]
NAME OF DISH Beef Steak & Oyster Pie
TITLE OF BOOK
AUTHOR EDITION PAGE SUBMITTED (DATE)

INGREDIENTS

QUANT	UNIT	INGREDIENTS	UNIT COST		TOTAL COST
3	1 oz	Steaks	lb	.29	.315
9	pieces	Oysters	ea	.02	.18
1	Cup	Potatoes (Colinette)	lb	.063	.02
1	Cup	[illegible]	gal	.49	.03
9	heads	Mushroom (4½ oz)	lb	.40	.112
1	cup	Tomato Sauce	gal	.49	.03
2	tsp	Sherry wine			
1		Small Carrot (½ oz)	lb	.013	.003
1		" Onion (1 oz)	lb	.033	.002
1		Branch Celery			
½		Clove Garlic			
		Bay leaf			
		Black pepper			.015
1	tsp	Chopped parsley			
3		Pie Crust	ea	.03	.09
9		Small Onions (4½ oz)	lb	.08	.022
					.519

THIS RECIPE IS FOR 3 PORTIONS

PROCESS

Cut from short hip, 3 Steaks weighing 1 oz each. Fry in butter with mirepoix. Add the Sherry and sauces & cook until well done.
Garnishing —
Small onions glazed
Oysters poached
Mushrooms sauted
Potatoes boiled
Put each steak in an individual pie dish with 3 oysters, 3 onions, 3 mushrooms, about 10 potatoes. Strain sauce over it, sprinkle chopped parsley over all, and cover with pie crust.
Bake in oven.

DATE TESTED 4/10/27 NUMBER OF RECIPES INCLUDED IN TEST 6 WAS THIS RECIPE ACCEPTED AS THE STANDARD? Yes
REMARKS
B. Allen
CHEF IN CHARGE OF EXPERIMENTAL KITCHEN

Fig. 73. Recipe as submitted for a test by the judges cooperating with the Savarin Perfecting Kitchen.

On a special form the supervising chef's secretary writes the new recipe, number of portions and how it should be served. A duplicate of this original, together with a photograph is sent to each Savarin unit. The photograph is not attached to the recipe blank unless the dish is complicated. Correct service is as important as good food.

Each unit has a supply of price sheets on which is listed the ingredients and their cost. This is necessary because local conditions often increase costs to a point where it is necessary to sell some dishes at a higher price.

Now let us assume that the menu for tomorrow calls for "Oysters and ham, Baltimore." The chef and cooks know today what is to be served tomorrow. The chef will hang on the bulletin board the standard recipe, which is incased in a frame with clear-vision celluloid front. The cook, whose job it will be to prepare the dish, assembles the raw food necessary to prepare the recipe. The photograph shows him how to serve it.

Since the announcement of this kitchen, several other hotels and restaurants have planned to do similar research work.

Dietetics. The second indication is the success of dietetic menus in the chain of Childs restaurants, and for guests in the hotels and restaurants operated by the Kahler Corporation in Rochester, Minn. Each item on the menu is preceded by a figure which shows the number of calories in the dish. Each dish is standardized, and is always prepared from the standardized recipe.

The Institutional Food Bureau is the third scientific force at work in institutions. It functions with the aid of the Savarin perfecting kitchen, the Kahler Corporation kitchens, and about two hundred hotels and restaurants, which make practical tests on foods and equipment. The fact that private organizations are willing to broadcast the results of research for which they are spending thousands of dollars a year is an indication of the splendid work being done to put food service and preparation on a scientific basis.

Opportunities. At the beginning of this chapter Oscar of the Waldorf stated that the hotel industry's greatest need is for young men who are willing to start where the raw food comes into the institution. The need is recognized in hotels. Before long hospitals and institutions will awaken to the same need. When the awakening is complete, young men will find kitchen management a fertile field for an interesting and profitable career.

And they won't be limited to institution kitchens. Chain organizations—and there are over seven hundred of them in the hotel and restaurant industry—will each need a traveling kitchen engineer. There will be a demand for those who can do the same work on a consulting basis for individual hotels, hospitals, clubs, restaurants, and other institutions. Architects who design kitchens will want the services of kitchen experts—on the payroll or on a consulting basis. Manufacturers who make kitchen equipment, and suppliers who sell it, must have men with kitchen knowledge. And finally comes the education field. The time is near when every school and college that has a department of Home Economics will teach this new science, and there will be more publications devoted to the subject. Teachers, writers, and editors will be in demand. The men and women who are now in the industry have the best opportunity. If they make a scientific study of food purchase, storage, preparation, control, and kitchen planning, this should be an advantage hard to overcome. The leaders in any industry are usually those who anticipated a need and prepared themselves for it. I sincerely believe that the profession of *Kitchen Management* and *Planning* is certain to become a remunerative reality.

APPENDIX A

BIBLIOGRAPHICAL NOTES

PUBLICATIONS OF INTEREST TO READERS

HOTEL PUBLICATIONS

Food Profits Magazine, New York, N. Y.—The second section of *Hotel Management*. It is issued monthly and contains technical and business articles of interest to managers, stewards, chefs, and dining-room executives.

Hotel Bulletin, Chicago, Ill.—A monthly magazine containing news and technical information.

Hotel Gazette, New York, N. Y.—A weekly magazine containing news, short ideas, and technical information.

Hotel, Am Hof 41–45, Cologne, Germany.—A weekly magazine containing news, business articles, and technical information about hotels in different parts of the world. Articles are published in German, French, and English.

Hotel Review, 1 Dorset Bldg., Salisbury and Fleet Sts., London, England.—A monthly magazine containing news and technical information about hotels in all parts of the world.

Hotel Management, New York, N. Y.—A monthly magazine in two sections. Publishes no news, but contains technical and management articles about hotels in all parts of the world.

Hotel Monthly, Chicago, Ill.—A monthly magazine devoted primarily to the technical and architectural features in new hotels. Contains some news.

Hotel World, Chicago, Ill.—A weekly publication containing news, technical information, and business articles.

London Caterer, 1 Dorset Bldg., Salisbury and Fleet Sts., London, England.—A monthly publication containing news and technical information about hotels in all parts of the world.

National Hotel Review, New York, N. Y.—A weekly news magazine, with a "Hotel Operation" section containing technical and management articles.

Pacific Coast Record, Los Angeles, Calif.—A monthly publication containing news and management articles. A special section for chefs and stewards.

Keeler's Pacific Coast Hotel Weekly, San Francisco, Calif.—A weekly news magazine containing some information on operation and management.

Midwest Hotel Reporter, Omaha, Nebr.—A weekly news publication containing some information on operation and management.

Tavern Talk, Kansas City, Mo.—A weekly news magazine that contains some information on operation and management.

Southern Hotel Reporter, Atlanta, Ga.—A monthly news publication that contains some information on operation and management.

Southeastern Hotel Reporter, Jacksonville, Fla.—A monthly news publication that contains some information on operation and management.

De Hotel Houder, Nes 31, Amsterdam, Holland.—A weekly Dutch hotel publication.

Dutsche Hotel Nachrichten, No. 32611 Under Verlog Heim, Eisler, Hamburg, 11, Germany.—A German weekly for hotels.

Schweizer Hotel Revue—Aeschengroben No. 35, Basle, Switzerland.—A weekly Swiss hotel publication.

La France Hotelière, 20 rue Magador, Paris, France.—A weekly French hotel publication.

Le Journal de la Cuisine, 29 rue de l'Evequin 29, Bruxelles, Belgium.—A weekly Belgium hotel publication.

Canadian Hotel Review, Toronto, Canada.—A monthly magazine devoted to news and management articles about Canadian hotels. Contains a minimum of articles about other hotels.

Western Hotel Reporter, San Francisco, Calif.—A weekly news publication containing some articles on operation and management.

Caterer and Hotel Proprietors Gazette, New York, N. Y.—A monthly publication containing news and management articles.

RESTAURANT PUBLICATIONS

American Restaurant, Chicago, Ill.—A monthly magazine containing news and technical information on all phases of restaurant operation and management.

Cafeteria Management, Chicago, Ill.—A monthly magazine containing news and information on all phases of cafeteria operation.

Pacific Caterer, Seattle, Wash.—A monthly publication containing news and management articles about hotels, restaurants, and clubs.

Restaurant Man, New York, N. Y.—A monthly magazine containing news and management articles. Official organ for the Restaurant Owners Association.

Restaurant Management Magazine, New York, N. Y.—A monthly business magazine of the restaurant industry. Deals with all phases of operation and management. Carries a minimum of news.

Restaurateur, New York, N. Y.—A monthly magazine carrying news and technical information on all phases of operation.

The Restaurant, Kansas City, Mo.—A weekly publication for restaurants.

HOSPITAL PUBLICATIONS

Hospital Management, Chicago, Ill.—A monthly magazine containing occasional articles about kitchens and kitchen problems.

Modern Hospital, Chicago, Ill.—A monthly magazine containing occasional articles about kitchens and kitchen problems.

GENERAL PUBLICATIONS

Alarm Clock, Fred F. French Bldg., New York, N. Y.—A monthly "house organ" published by Horwath & Horwath. It contains practical articles on hotel, restaurant, club, and hospital accounting and operation.

American Food Journal, New York, N. Y.—A monthly magazine devoted to food education.

Chef and Steward Magazine, Chicago, Ill.—A monthly magazine devoted to news and technical information.

Hotel Industry, New York, N. Y.—A monthly magazine containing news and technical information. Official organ of the International Geneva Association.

Pacific Coast Chef, Seattle, Wash.—A monthly magazine containing recipes, ideas, and technical articles of interest to chefs and stewards.

International Steward, Chicago, Ill.—A monthly publication containing news and technical information. Official organ of the International Stewards Association.

International Hotel Industrie, 18 Johann-Georgen Alle, Dresden A-1, Germany.—A weekly publication for the International Geneva Society.

Journal Mensuel, 9 rue de Hane, Paris, France.—A French monthly publication for restaurants.

Club Management, Chicago, Ill.—A monthly magazine containing occasional articles about kitchens and kitchen problems.

Industrial Cafeteria, Chicago, Ill.—This monthly publication takes up the problems of feeding industrial America.

School Feeding, Chicago, Ill.—A monthly magazine devoted to problems of feeding students.

Valet Journal, New York, N. Y.—A monthly magazine for chefs and stewards.

National Culinary Progress, Chicago, Ill.—A monthly publication for chefs and stewards.

American Cookery, Boston, Mass.—A monthly magazine of home cooking.

Le Revue Culinère, rue St.-Roch 45, Paris, France.—A French monthly publication for cooks.

The Steward, New York, N. Y.—A monthly publication containing news and technical articles of special interest to chefs and stewards.

Books

Books which contain valuable information for those who are interested in food purchase, storage, preparation, sales, and control.

Back of the House, John Dismukes Green. Gehring Publishing Company, New York, N. Y.

Hotel Management, L. M. Boomer. Harper & Brothers, publishers, New York, N. Y.

Employer-Employee Relations in Hotels, W. I. Hamilton. Williams & Wilkins, publishers, Baltimore, Md.

Ideas for Refreshment Rooms, John Willy. *Hotel Monthly*, publishers, Chicago, Ill.

Restaurant Management, J. O. Dahl. Harper & Brothers, publishers, New York, N. Y.

Lunch Room as a Money Maker, C. A. Patterson. Patterson Publishing Company, Chicago, Ill.

Hotel Organization Management and Accounting, G. de Boni. Sir Isaac Pitman & Sons, publishers, New York, N. Y.

The American Waiter, John B. Gains. The *Hotel Industry Magazine*, New York, N. Y.

Table Service, Lucy G. Allen. Little, Brown & Co., publishers, Boston, Mass.

Quantity Cookery, Richards and Treat. Little, Brown & Co., publishers, Boston, Mass.

Cafeteria Recipes, Mabel E. Schodt. The Womans Press, publishers, New York, N. Y.

Encyclopedia of Modern Cooking, J. Gancel. The *Hotel Industry Magazine*, New York, N. Y.

The Lunch Room, Paul Richards. The *Hotel Industry Magazine*, New York, N. Y.

Fellows' Menu Maker, Charles Fellows. The *Hotel Industry Magazine*, New York, N. Y.

Practical Hotel Steward, John Tellman. The *Hotel Industry Magazine*, New York, N. Y.

Cooking for Profit, J. Whitehead. The *Hotel Industry Magazine*, New York, N. Y.

The Steward's Handbook, J. Whitehead. The *Hotel Industry Magazine*, New York, N. Y.

A Guide to Modern Cooking, A. Escoffier. The *Hotel Industry Magazine*, New York, N. Y.

Food Buying and Our Markets, Monroe and Stratton. M. Barrows & Co., publishers, Boston, Mass.

The Story of Canned Foods, James H. Collins. E. P. Dutton & Co., publishers, New York, N. Y.

Meats and Meat Products, William Henry Tomhave. J. B. Lippincott Co., publishers, Philadelphia, Pa.

Licensed Houses and Their Management, W. Bentley Cooper. Hotel Review Publishing Co., London, England.

Salads, Sandwiches, and Specialty Dishes, Emory Hawcock. Harper & Brothers, publishers, New York, N. Y.

The Encyclopedia of Food, Artemas Ward. Artemas Ward Co., New York, N. Y.

Hotel Accounting, E. B. Horwath and Louis Toth. Ronald Press, New York, N. Y.

Small Hotel Accounting, Louis Toth. Ahrens Publishing Co., New York, N. Y.

Restaurant Accounting, Louis Toth. Ahrens Publishing Company, New York, N. Y.

These books may be purchased from the publishers direct or through the book department of the leading publications.

APPENDIX B

SURVEY OF INSTITUTIONS SERVING FOOD

STATISTICS from the Department of Commerce show that institutions serve from 25 to 35 per cent of all meals eaten in cities. The table that follows lists the institutions that serve food in a city of 25,000:

No.	*Institution*	*Meals served daily*
9	Hotels	1.100
27	Commercial restaurants	8,500
5	Tea rooms	525
1	Lunch car	160
4	Drug stores	625
1	Department store	185
2	Churches	150
5	Dining cars	125
1	Commercial club	300
1	Fraternal club	125
2	Billiard parlors	350
1	Gas station	125
1	Butcher shop	75
1	Depot	150
2	Hospitals	650
1	Jail (city)	75
2	Roadside stands	125
1	Farmhouse	25
18	Boarding-houses	450
1	Y. M. C. A.	125
1	Y. W. C. A.	150
4	Candy stores	50
1	Salvation army	35
3	Schools (Downtown)	1,600
3	Orphan asylums	275
2	Homes for wayward girls	50
1	Soldiers' home	40
4	Fraternity houses	225
1	Convent	60
2	Parochial schools	150
1	County jail	45
1	Detention hospital	25
5	Private sanitariums	175
2	Bakeries	215
1	Delicatessen	50
1	County home	60
1	Industrial cafeteria	75
1	Theatre	125
1	City market	75
1	Dance-hall	115
1	Boat-house	90
1	Country club	165
1	Park stand	50
	Total	18,485

This table shows the importance of quantity cooking as a new factor in American life. A new type of person is needed to do the work in these institutions, to plan the buildings and merchandise food products and equipment to those who are investing in buildings that feed and house people in groups.

APPENDIX C

STANDARDIZATION OF CHINA

Recommended list of sizes, types, and capacities of chinaware for hotel, restaurant, cafeteria, hospital, dining car, and government service

No.	Items	Trade size	Actual size	Tolerance
1	Plates	3 inches	5½ inches	⅛ inch.
2	Plates	4 inches	6¼ inches	⅛ inch.
3	Plates	4½ inches	6⅝ inches	⅛ inch.
4	Plates	5 inches	7⅛ inches	⅛ inch.
5	Plates	6 inches	8⅛ inches	⅛ inch.
6	Plates	7 inches	9 inches	⅛ inch.
7	Plates	8 inches	9⅝ inches	⅛ inch.
8	Plates, lunch, or grille	....	9⅞ inches	¼ inch.
9	Plates, soup, coupe deep	6 inches	7½ inches	⅛ inch.
10	Plates, soup, rim deep	5 inches	7 inches	⅛ inch.
11	Plates, soup, rim deep	7 inches	9 inches	⅛ inch.
12	Butters, individual	2 inches	3 inches	⅛ inch.
13	Butters, individual, thick	2½ inches	3 inches	⅛ inch.
14	Butters, individual	2½ inches	3½ inches	⅛ inch.
15	Ice cream handled shell	No. 0 (8-oz.)	5 inches	⅛ inch.
16	Ice cream handled shell	No. 2 (6-oz.)	4⅛ inches	⅛ inch.
17	Dishes, oval, platters	4 inches	7 inches	⅛ inch.
18	Dishes, oval, platters	6 inches	9⅛ inches	⅛ inch.
19	Dishes, oval, platters	8 inches	11¼ inches	¼ inch.
20	Dishes, oval, platters	10 inches	13¼ inches	¼ inch.
21	Dishes, oval, platters	12 inches	15⅛ inches	¼ inch.
22	Dishes, oval, platters	14 inches	17½ inches	½ inch.
23	Bakers	2½ inches, double thick	5⅛ inches	⅛ inch.
24	Bakers	2½ inches	5¼ inches	⅛ inch.
25	Bakers	3 inches	5¼ inches	⅛ inch.
26	Bakers	5 inches	7¼ inches	⅛ inch.
27	Bakers	8 inches	10 inches	⅛ inch.
28	Bakers	10 inches	11⅞ inches	⅜ inch.
29	Bakers, open vegetable dish	8 inches	10⅛ inches	¼ inch.
30	Sauce boats	Large	11 ounces	1 ounce.

No.	Items	Trade size	Actual size	Tolerance
31	Sauce boats	Medium	5 ounces	½ ounce.
32	Sauce boats (cable)		13 ounces	1 ounce.
33	Sauce boats	Small	3 ounces	½ ounce.
34	Bowls, low foot	30's	5¾ inches	⅛ inch.
35	Bowls, footed	30's	6 inches	¼ inch.
36	Bowls, oatmeal (cereal)		6 inches	⅛ inch.
37	Bowls, sugar	No. 1	17 ounces	1½ ounces.
38	Bowls, sugar	No. 2	12 ounces	1 ounce.
39	Bowl, sugar, covered tankard shape	16 ounces (max. wt.)	11 ounces	1 ounce.
40	Bowls, sugar, individual, covered, unhandled.		5 ounces	¼ ounce.
41	Sugar, open oval ribbed	Ind. (6-oz.)	5 ounces	½ ounce.
42	Salad bowls	No. 1	11⅛ inches	¼ inch.
43	Salad bowls	No. 3	9½ inches	¼ inch.
44	Salad bowls	No. 4	8¼ inches	¼ inch.
45	Salad bowls	No. 5	7 inches	¼ inch.
46	Salad bowls	No. 6	6 inches	¼ inch.
47	Comport, footed, salad, Illinois shape.	No. 4	6½ inches	¼ inch.
48	Comport, footed, salad, Illinois shape.	No. 3	7½ inches	⅜ inch.
49	Cups, bouillon, ovide, heavyweight.		7½ ounces	½ ounce.
50	Cups, bouillon, ovide, medium weight, 2 block handle.		7½ ounces	½ ounce.
51	Liner, bouillon, unhandled, fancy shape.	Tea	7 ounces	½ ounce
52	Cover, bouillon	Tea	4 inches	⅛ inch.
53	Cups, coffee, ovide, heavyweight.		9½ ounces	½ ounce.
54	Cups, tea, ovide, heavyweight		7½ ounces	½ ounce.
55	Cups, tea, ovide, medium weight.		7½ ounces	½ ounce.
56	Cups, tea, semiovide		8 ounces	½ ounce.
57	Cups, extra tea, ovide, medium weight.		8½ ounces	½ ounce.

No.	Items	Trade size	Actual size	Tolerance
58	Cups, coffee, heavy, straight side.		9 ounces	½ ounce.
59	Cups, coffee, heavy, ovide		10 ounces	½ ounce.
60	Cups, coffee, Saxon (after dinner).		3½ ounces	¼ ounce.
61	Cups, unhandled	13 ounces	3¾ inches high	⅛ inch.
62	Cups, egg, double		4 ounces	¼ ounce.
63	Cups, egg, wheat, unhandled		6½ ounces	½ ounce.
64	Cups, egg, footed, single		1½ ounces	¼ ounce.
65	Cups, egg, footed, Boston	No. 1	6½ ounces	½ ounce.
66	Cups, egg, covered, Boston		4¼ inches	⅛ inch.
67	Saucers, tea, medium		5⅞ ounces	⅛ ounce.
68	Saucers, tea, wide foot		6⅛ inches	⅛ inch.
69	Saucers, tea, reinforced well hole.		5¾ inches	⅛ inch.
70	Saucers, coffee		6⅝ inches	⅛ inch.
71	Saucers, coffee		7 inches	⅛ inch.
72	Saucers, coffee (after dinner)		4⅞ inches	⅛ inch.
73	Pot, coffee, individual		12 ounces	1 ounce.
74	Cover, cake, plain		6¼ inches	⅛ inch.
75	Trays, celery, oval	No. 1	12 inches	¼ inch.
76	Trays, celery, oval	No. 2	10 inches	¼ inch.
77	Trays, celery, oval	No. 3	7½ inches	⅛ inch.
78	Trays, celery, oval	Fancy	11 inches	¼ inch.
79	Creams, Vienna, handled or unhandled.	No. 1	2¼ ounces	¼ ounce.
80	Creams, Vienna, handled or unhandled.	No. 2	1½ ounces	¼ ounce.
81	Creams, Vienna, unhandled		1¾ ounces	⅛ ounce.
82	Creams, unhandled		1 ounce	⅛ ounce.
83	Jugs, cream, handled	54's	4½ ounces	½ ounce.
84	Dishes, fruit, coupe shape	3 inches	4⅛ inches	⅛ inch.
85	Dishes, fruit, coupe shape	3½ inches	4¾ inches	⅛ inch.

No.	Items	Trade size	Actual size	Tolerance
86	Dishes, fruit, coupe shape	4 inches	5⅜ inches	⅛ inch.
87	Dishes, fruit, coupe shape	4½ inches	5¾ inches	⅛ inch.
88	Dishes, ice cream	4 inches	4⅛ inches	⅛ inch.
89	Dishes, ice cream	4½ inches	5 inches	⅛ inch.
90	Dishes, grape fruit		6¼ inches	⅛ inch.
91	Dishes, pickle, oval		8½ inches	¼ inch.
92	Dishes	5 inches	8¼ inches	⅛ inch.
93	Dishes	7 inches	10½ inches	⅛ inch.
94	Ice tubs		9¼ pints	1 pint.
95	Jugs	6's	6 pints	¾ pint.
96	Jugs	12's	4½ pints	½ pint.
97	Jugs	24's	3½ pints	⅜ pint.
98	Jugs	36's	1¼ pints	¼ pint.
99	Jugs	42's	¾ pint	⅛ pint.
100	Jug R/E	46's	8 ounces	½ ounce.
101	Jugs	48's	5½ ounces	¾ ounce.
102	Jugs, hall boy	24's	2¾ pints	½ pint.
103	Jugs, pitcher	No. 5	8 pints	1 pint.
104	Match stands, round hooded		6½ inches	½ inch.
105	Mugs, coffee	24's	9½ ounces	½ ounce.
106	Mugs, coffee	30's	7½ ounces	½ ounce.
107	Mustard, unhandled, large		6½ ounces	½ ounce.
108	Mustard pots, Vienna, unhandled.	No. 1	4 ounce.	½ ounce.
109	Nappies (bowls)	3 inches	5 inches	⅛ inch.
110	Nappies (bowls)	4 inches	5¾ inches	⅛ inch.
111	Nappies, soup		$5\frac{7}{16}$ ounces	¼ ounce.
112	Nappies, oatmeal		5⅞ ounces	¼ ounce.
113	Pickle, club celery	No. 2	9⅜ inches	⅛ inch.
114	Trays, pin		5¼ inches	⅛ inch.
115	Casserole, plain	8 inches	2¾ pints	¼ pint.

It is further recommended that the recognized items be made in three weights only, as covered by the trade names "Rolled edge," "Medium weight," and "Lightweight," respectively.

APPENDIX D

REFRIGERATION CHART

INSTITUTIONS usually have a temperature of from 40° to 42° in their refrigerators. This is not, however, the proper temperature for all foods. The following are considered to be ideal:

Article	Temp. in Deg. F.
Apples	30–33
Asparagus	33–38
Beans (navy)	40
Bananas	40–45
Berries	40
Berries (frozen)	20
Butter	9–10
Cabbage	31–34
Canned fruits	38
Canned vegetables	44
Canned meats	32–38
Flour	35–40
Game	10
Grapes	32–40
Hams	20
Lemons	38
Meats (fresh)	34–40
Meats (frozen)	15–25
Meats (pickled)	28–30
Nut meats	36
Onions	32–34
Cantaloupe	9–10
Celery	33–36
Cereals	34–40
Cheese	32–34
Cigars	32–45
Corn	38–45
Currants	32–34
Dried Fruit	35–38
Eggs	28–31
Fish (frozen)	15
Fish (fresh)	30–34
Oranges	34–40
Parsnips	33
Peaches	40
Pears	34
Plums	32–34
Potatoes	33–38
Poultry (dressed)	32
Poultry (frozen)	10
Raisins	50
Sugar and syrup	40–45
Watermelon	40

APPENDIX E

FLOOR PLANS OF HOTEL KITCHENS

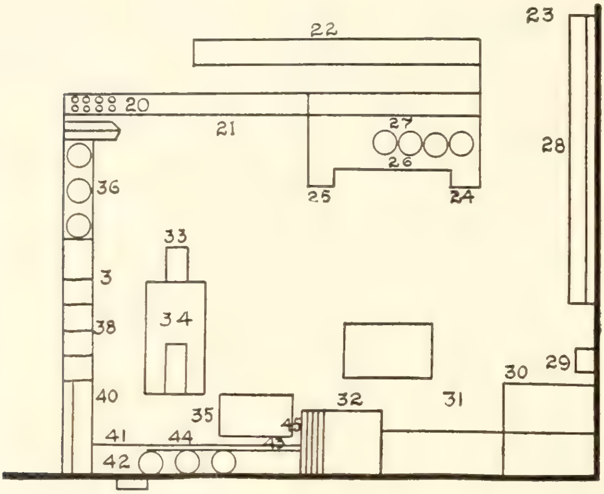


Fig. 74. This plan illustrates the idea of a service window to the dining room. The room is designed for a large hotel.

KEY TO KITCHEN PLAN

20 Box containing snow for fruit
21 Work table
22 Ice boxes for plates
23 Entrance to fruit pantry
24 Small hot water box
25 Small hot water box
26 Ice-cream containers
27 Ice box for ice-cream dishes
28 Installation of silver dishes
29 Desk
30 Ice boxes for pastry and fruit juices
31 Work tables
32 Pie rack
33 Sink
34 Bread cutter and work table
35 Ice box for butter, milk, bread
36 Waffle irons
37 Hot-cake plate
38 Toaster
39 Toaster
40 Installation of cream pitchers
41 Work table
42 Coffee window to dining room
43 Hot milk and chocolate boiler
44 Coffee and water urns
45 Shelf for installation of silverware

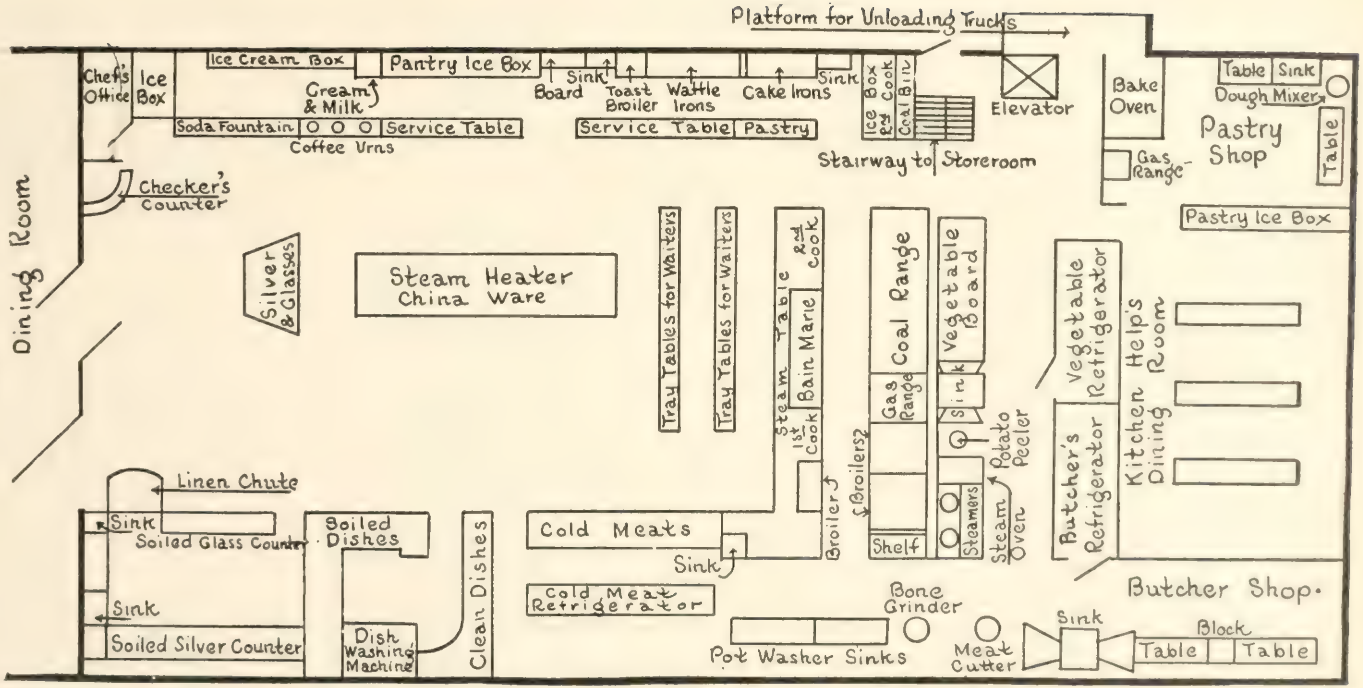


Fig. 75. When the kitchen has but one dining room to serve, the problem of location and equipping its various stations is greatly simplified.

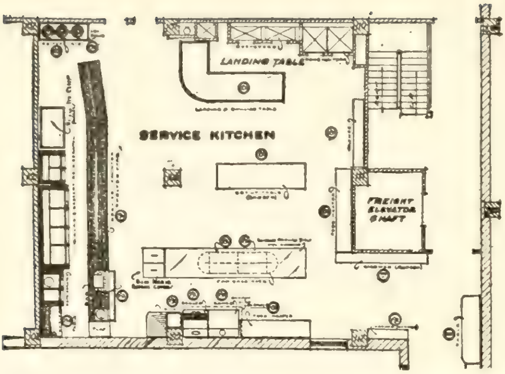


Fig. 76. Floor service kitchen in a hotel that does a great deal of banquet business.

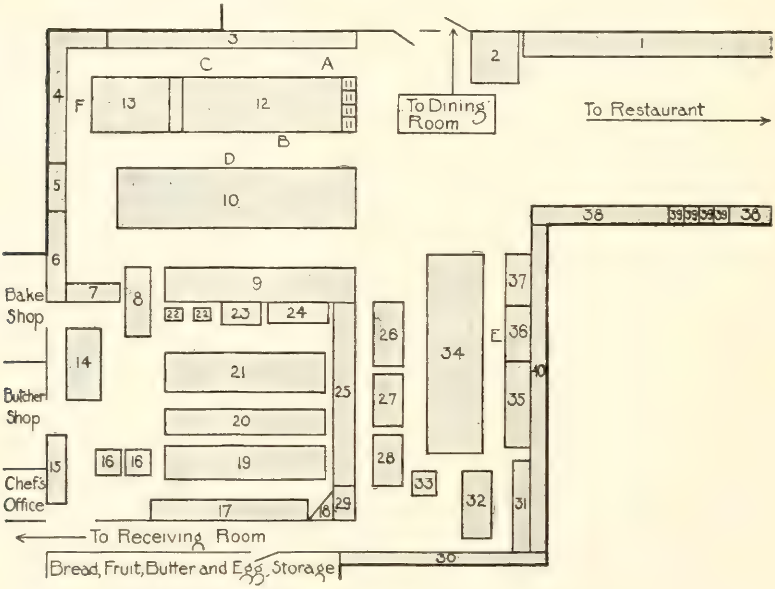


Fig. 77. The compact kitchen in a Swiss hotel.

Key to Kitchen Plan

1 Storage shelf for silver
2 Bin for soiled linen
3 Storage shelves for silver and dishes
4 Drying table for silver and dishes
5 Sink to wash silver
6 Drying table for silver
7 Work table
8 Cooks table for soiled dishes
9 Work table and storage
10 Table to stack dishes
11 Bins for soiled silver
12 Sorting table for soiled dishes
13 Dish washing machine
14 Work table
15 Work table
16 Steam cookers
17 Work table
18 Dish storage for cooks
19 Ranges
20 Work table
21 Ranges
22 Mixing machine
23 Potato peeler
24 Work table and dish storage for cooks
25 Order table and dish warmers
26 Work table
27 Work table
28 Work table
29 Electric toaster
30 Storage
31 Work table
32 Range for special kitchen
33 Checker for special kitchen
34 Work table for glasses
35 Silver cleaning machine
36 Sink for washing dishes
37 Drying table for glasses
38 Storage space for glasses
39 Dumb waiters to floors
40 Storage space for silver and glasses

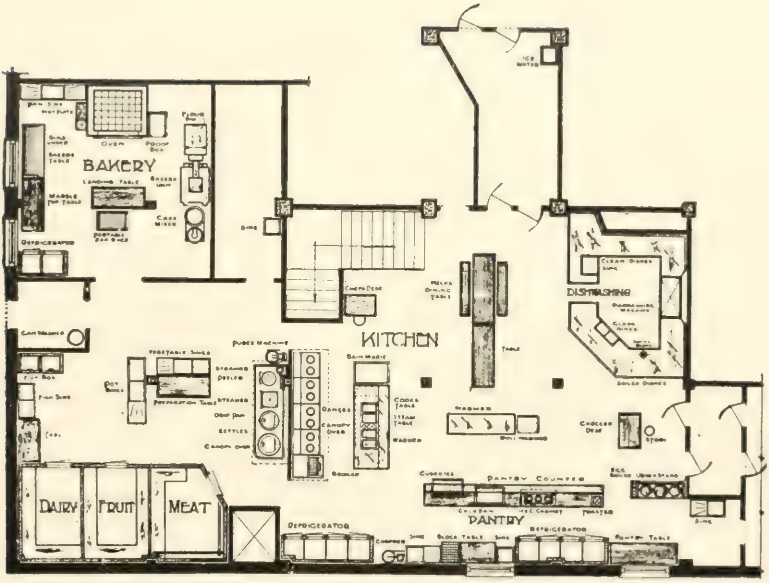


Fig. 78. The kitchen in a successful large hotel.

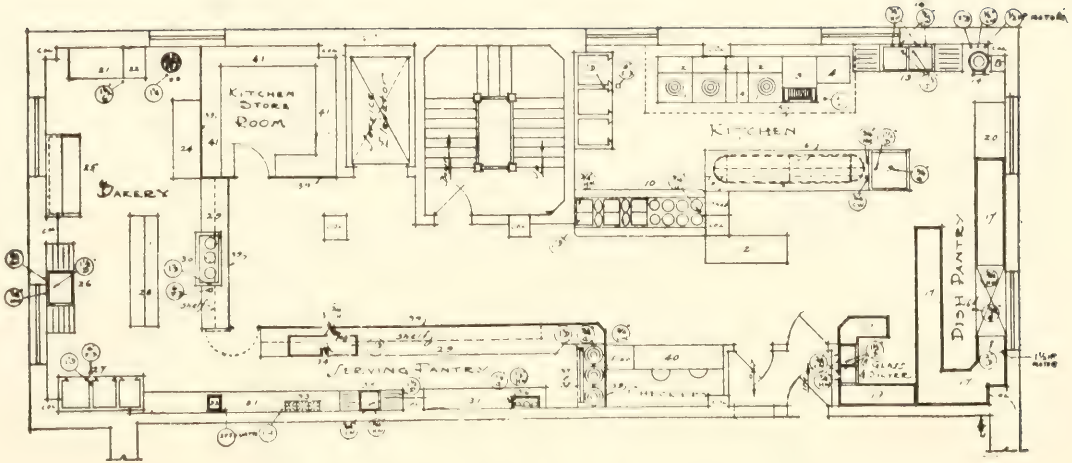


Fig. 79. Layout for a large modern hotel.

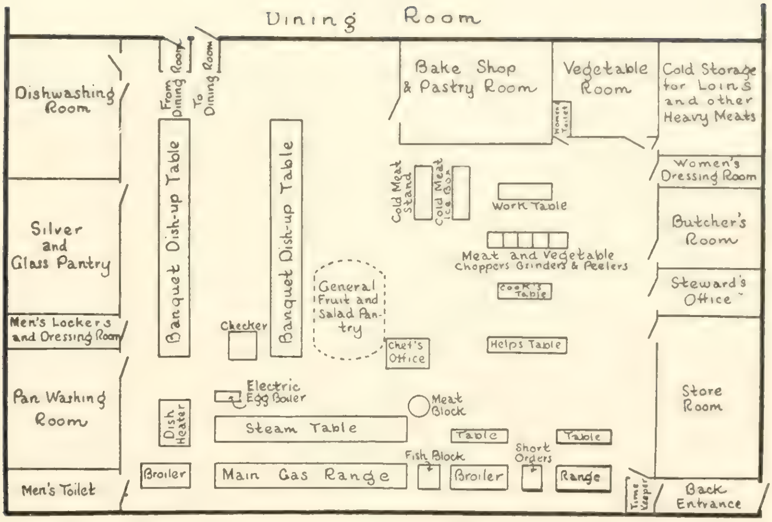


Fig. 80. This prize-winning kitchen has all food preparation centralized on one floor.

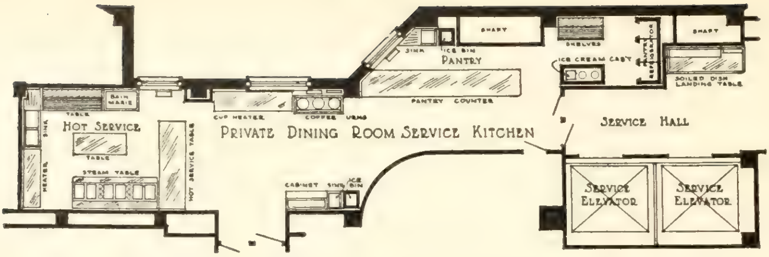


Fig. 81. Service kitchen for private dining rooms in a large hotel.

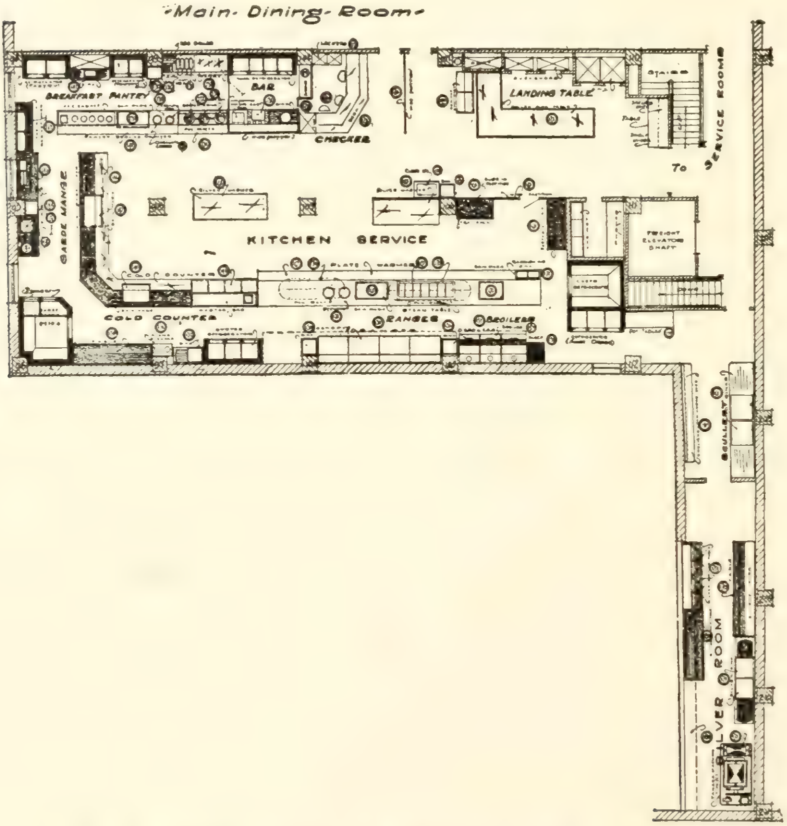


Fig. 82. Service kitchen on the second floor of the Bismarck hotel in Chicago. This kitchen serves three dining rooms and the room service.

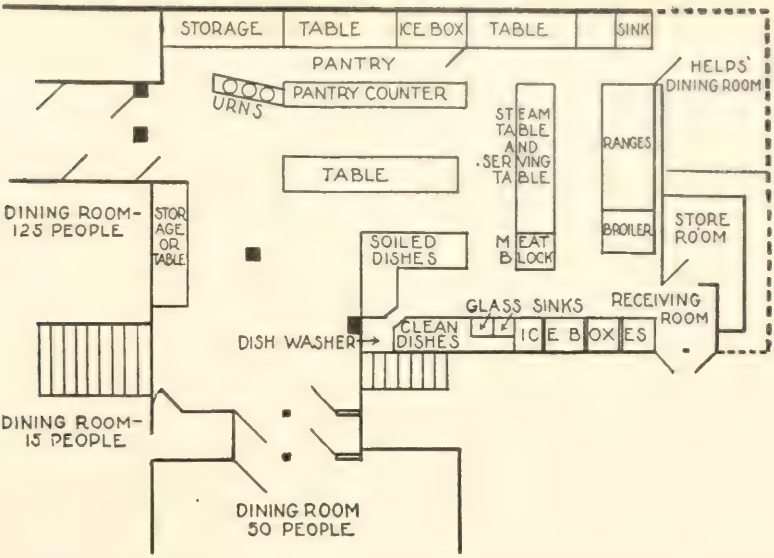


Fig. 83. A kitchen layout that provides for service to three dining rooms with the minimum of lost time and motion. Note waiters coming from each room would join in with those coming from the other rooms, rather than crossing or opposing the general movement. The soiled dish table is conveniently located for all dining rooms. Note location of help's dining room, also receiving and store rooms.

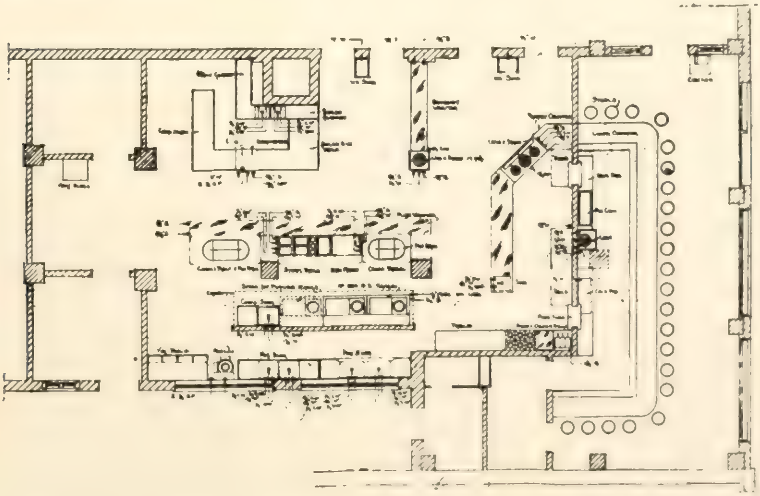


Fig. 84. Lunch counter and dining room service from the same kitchen.

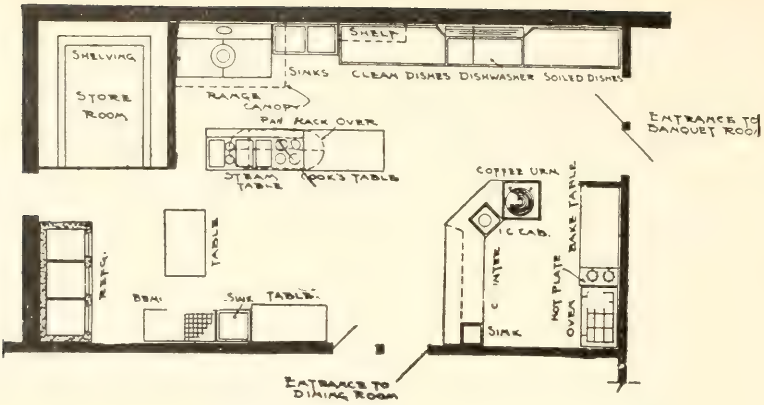


Fig. 85. An ideal layout for a small hotel kitchen and storeroom. Two dining rooms can be served efficiently from this kitchen, provision for which has been made as shown.

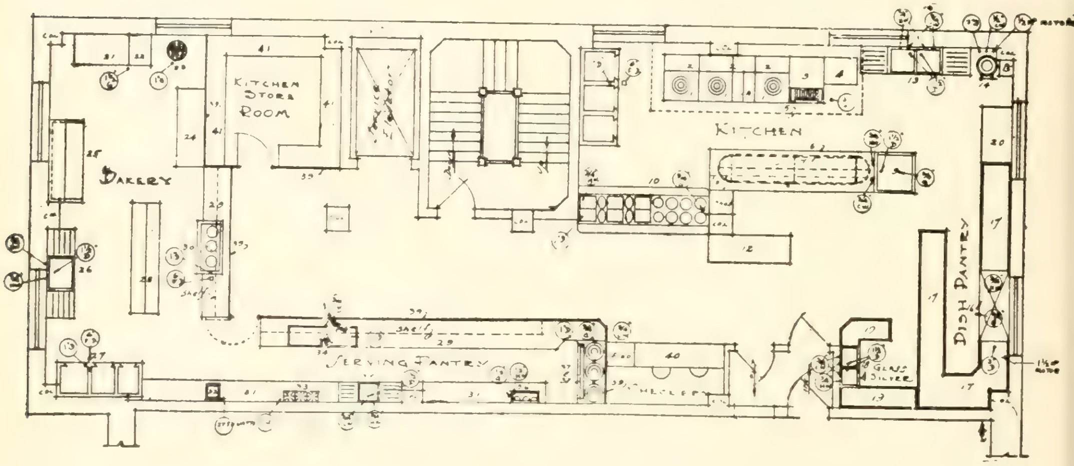


Fig. 86. This efficient kitchen has the storeroom and bakery on the same floor.

KEY TO KITCHEN PLAN

1 Range 1-A Spreader Pl.
2 Plate shelf
3 Broiler
4 Griddle
5 Canopy over
6 Cooks' table
7 Pot rack over
8 Plate warmer under
9 Bain Marie
10 Steam table pl. wr.
11 Chef's box
12 Tray table—pl. warmer
13 Pot veg. sink
14 Veg. parer
15 Waste box
16 Dishwasher
17 Dish tables
18 Glass and silver sink
19 Gl. and silver soiled tables
20 Veg. work table
21 Bake oven
22 Proof box
23 Pastry stove
24 Pan rack
25 Bakers' table
26 Pan sink
27 Bakers' refrigerator
28 Salad table
29 Serving counter
30 Ice cream cabinet
31 Back bar
32 Elect. toaster
33 Hot plate
34 Oyster bar
35 Sink
36 Egg boiler
37 Urns and cup warmer
38 Urns and cup warmer
39 Wire enclosure
40 Checkers' desk
41 Storeroom shelving

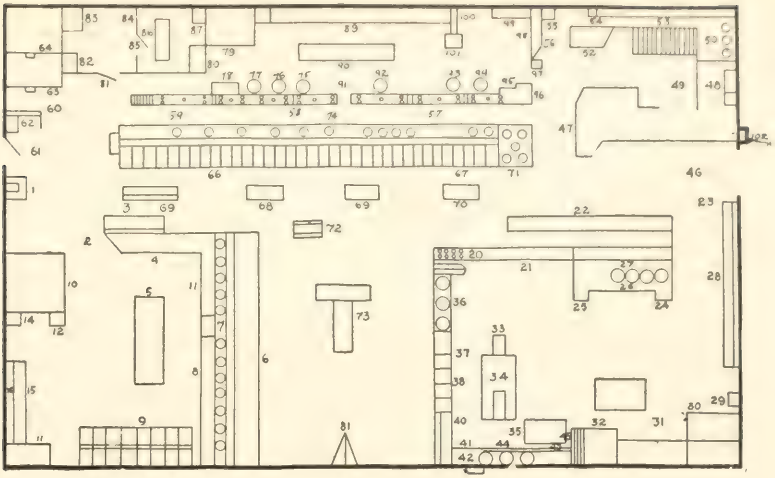


Fig. 87. This kitchen is located in a 500-room hotel that operates seven dining rooms in addition to a number of private dining rooms and banquet rooms.

Key to Kitchen Plan

1 Chef's desk
2 Pantry
3 Egg boiler
4 Work table
5 Work table
6 Ice box for cold plates
7 Installation of jars
8 Work table
9 Ice boxes
10 Ice box
11 Sink
12 Meat grinder
13 Entrance to pantry
14 Bread crumb machine
15 Work table
16 Installation of pans
17 Work table
18 Entrance
19 Steamer for hot bread
20 Box containing snow for fruit
21 Work table
22 Ice boxes for plates
23 Entrance to fruit pantry
24 Small hot water box
25 Small hot water box
26 Ice cream containers
27 Ice box for ice cream dishes
28 Installation of silver dishes
29 Desk
30 Ice boxes for pastry and fruit juices
31 Work tables
32 Pie rack
33 Sink
34 Bread cutter and work table
35 Ice box for butter, milk, bread
36 Waffle irons
37 Hot-cake plate
38 Toaster
39 Toaster
40 Installation of cream pitchers
41 Work table
42 Coffee window to dining room
43 Hot milk and chocolate boiler
44 Coffee and water urns
45 Shelf for installation of silverware
46 Entrance to dining room
47 Glass stand
48 Dish washing machine
49 Work table and tray rack
50 Boiler to wash silver
51 Work table
52 Work table
53 Table for silverware
54 Steel knife machine
55 Silver polish machine
56 Work table
57 Coal ranges
58 Coal ranges
59 Broilers
60 Meat railing to ice box and freezer
61 Back entrance
62 Meat scales
63 Ice box for meats
64 Freezer
65 Water sprinkler for garnishes
66 Plate warmers
67 Plate warmers
68 Plate warmers
69 Plate warmers
70 Plate warmers
71 Soup warmer
72 Checker's desk
73 Bread and butter table
74 Steam table for vegetables
75 Soup boiler
76 Soup boiler
77 Stock boiler
78 Work table
79 Store room
80 Bake oven
81 Entrance to pastry shop
82 Work table
83 Ice box
84 Ice cream machine
85 Entrance to bake shop
86 Work table
87 Bread mixing machine
88 Ice box for vegetables
89 Ice box for vegetables
90 Work table
91 Entrance to cook stoves
92 Soup boiler
93 Potato peeling machine
94 Potato whipping machine
95 Steamer
96 Work table
97 Ice box
98 Work table
99 Pot washer's sink
100 Sink for potatoes
101 Work table
102 Checker's desk

APPENDIX F

FLOOR PLANS OF RESTAURANT KITCHENS

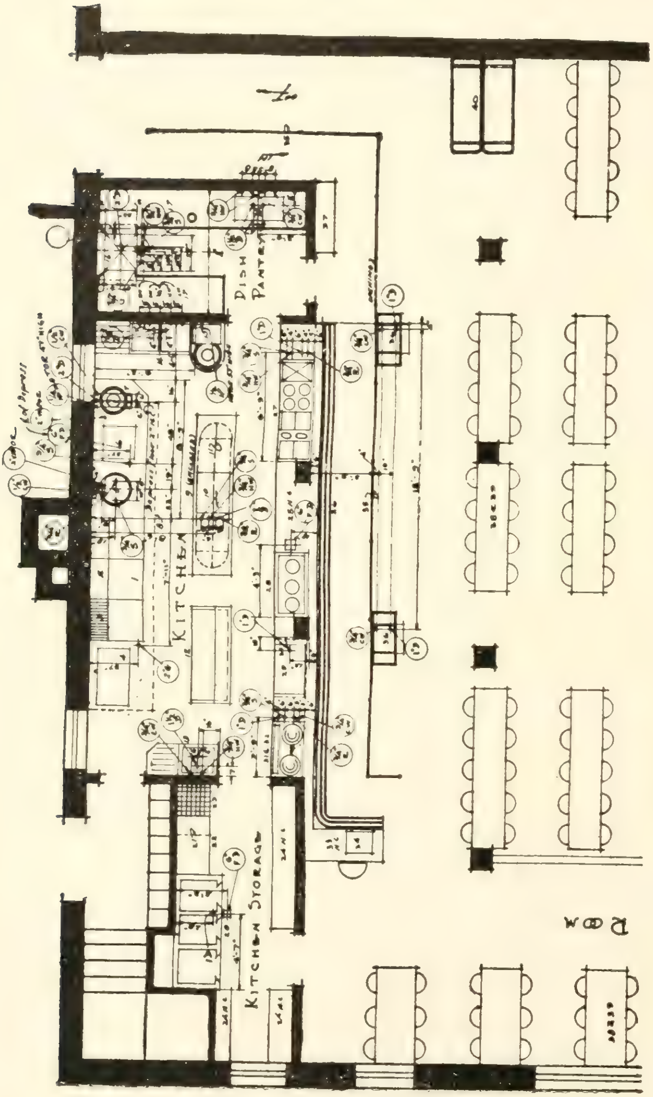


Fig. 88. The kitchen in a busy cafeteria.

1 Ranges
2 Plate shelf
3 Broiler
4 Bake oven
5 Stock kettle
6 Vegetable steamer
7 Vegetable parer
8 Canopy over
9 Cook's table
10 Bain Marie
11 Pot rack over
12 Baker's table
13 Pot and pan sink
14 Vegetable sink
15 Kitchen machine
16 Dishwasher
17 Dish tables
18 Glass and silver sink
19 Canopy over
20 Refrigerator
21 Refrigerating machine
22 Cutting table
23 Meat block
24 Shelving N. C.
25 Counter N. C.
26 Tray slide
27 Steam table
28 Ice cream cabinet
29 Cold pan
30 Display stand
31 Urns
32 Cup warmer under
33 Checker's desk N. C.
34 Cash register
35 Traffic rail
36 Water coolers
37 Tray and silver stand
38 Tables
39 Chairs
40 Soiled dish trucks

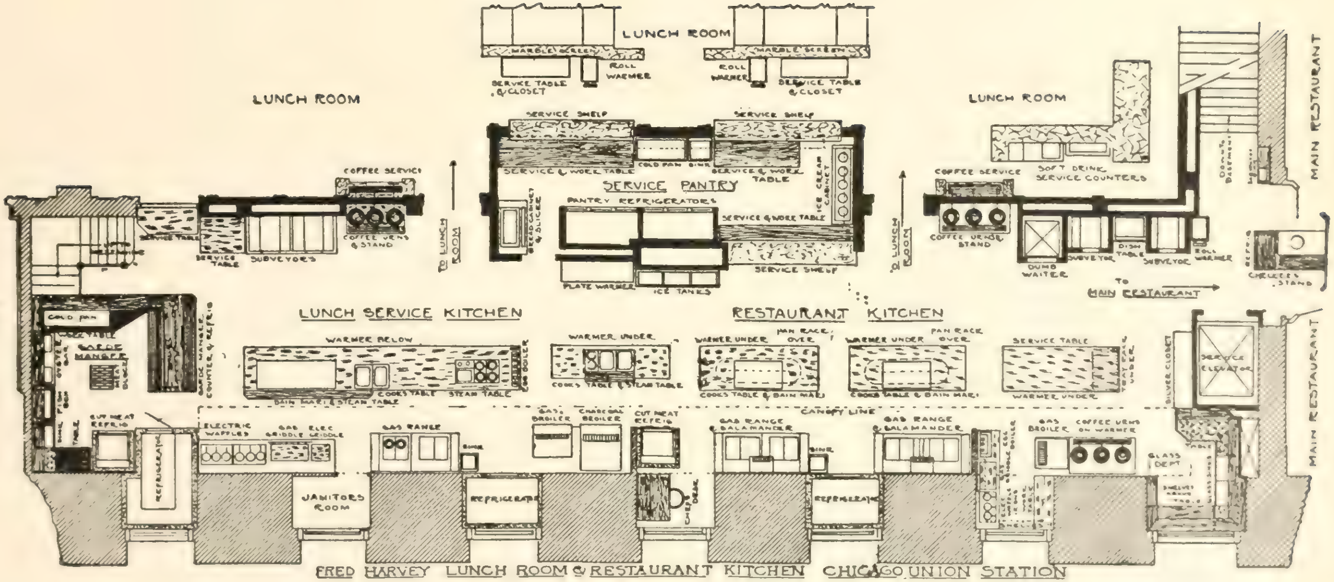


Fig. 89. An unusual layout to serve a group of restaurants from the same kitchen.

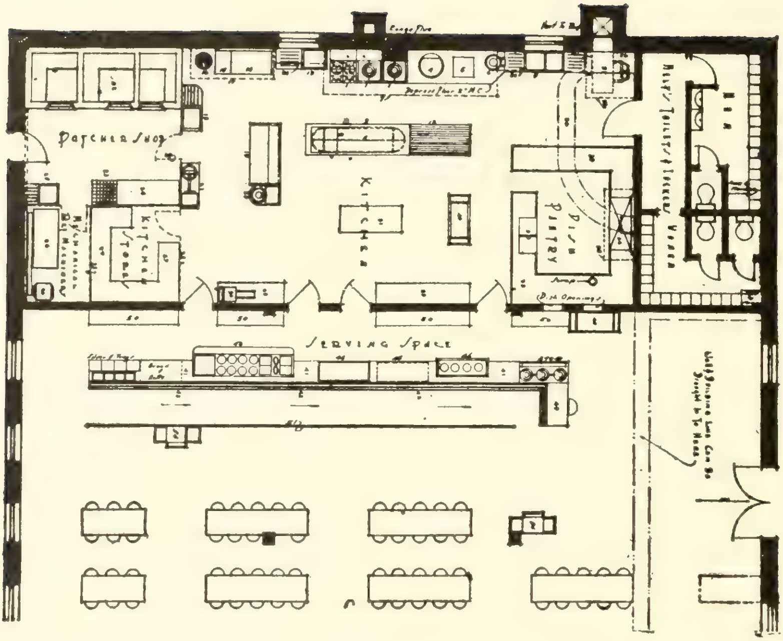


Fig. 90. The kitchen in a large cafeteria.

KEY TO KITCHEN PLAN

1 Range
2 Shelf
3 Broiler
4 Stock
5 Vegetable steamer
6 Parer
7 Canopy over
8 Vegetable sink
9 Cook table
10 Bain Marie
11 Pot rack over
12 Vegetable work table
13 Pot sink
14 Bake oven
15 Proof box
16 Pastry stove
17 Canopy over
18 Baker's pan sink
19 Baker's table bins
20 Kitchen machine
21 Meat chopper
22 Storage refrigerator
23 Meat block
24 Cutting bench
25 Meat sink
26 Ref. machinery
27 Shelving
28 Wire enclosure
29 Work tables
30 Bread slicer
31 Tray table—warmer
32 Dishwasher
33 Dish tables
34 Glass and silver sink
35 Canopy over
36 Vent ducts
37 Ventilating fan
38 Fan platform
39 Plate warmer
40 Soiled dish trucks
41 Cafeteria counter
42 Tray slide
43 Steam table
44 Bottle milk pan
45 Display stand over
46 Ice cream cabinet
47 Urns
48 Cup warmer under
49 Checker's desk
50 Back bar
51 Traffic rail
52 Tables
53 Chairs
54 Water coolers

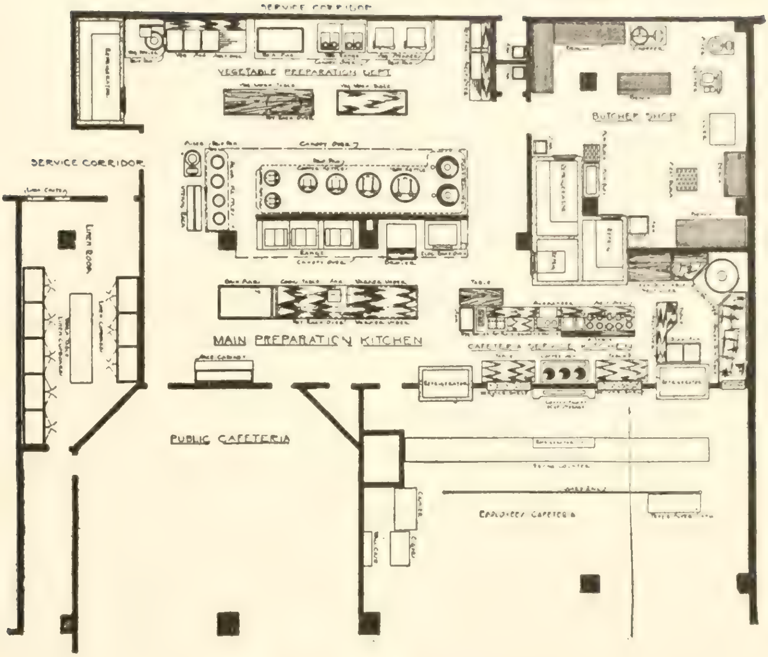


Fig. 91. Plan of the main preparatory kitchen of the Fred Harvey Restaurant in the Chicago Union Station. It is located in the basement. Note the cafeteria service kitchen for the employees' cafeteria; also, connection with the public cafeteria which is to be opened at a later date. See butcher shop plan also, above, right.

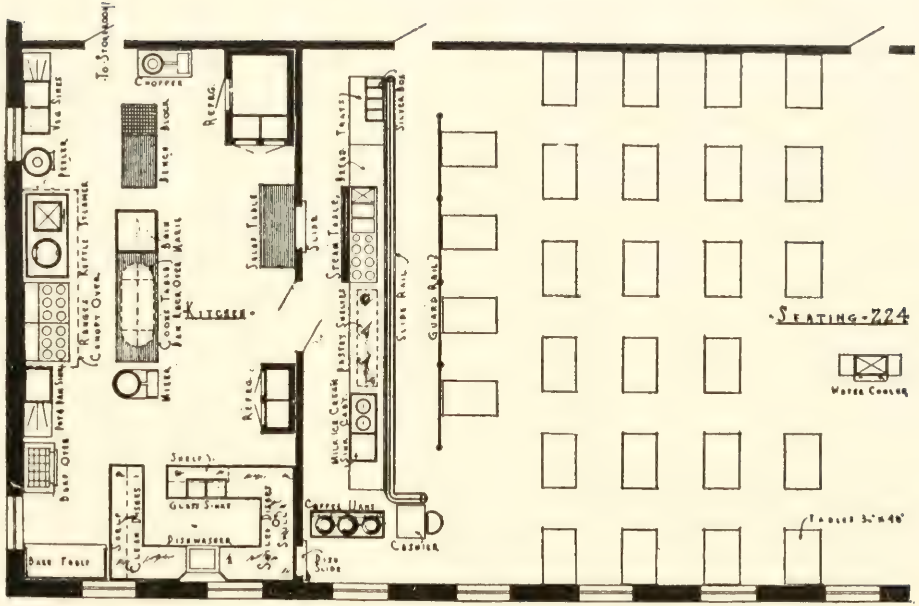


Fig. 92. Over a thousand people a day are served from this cafeteria kitchen.

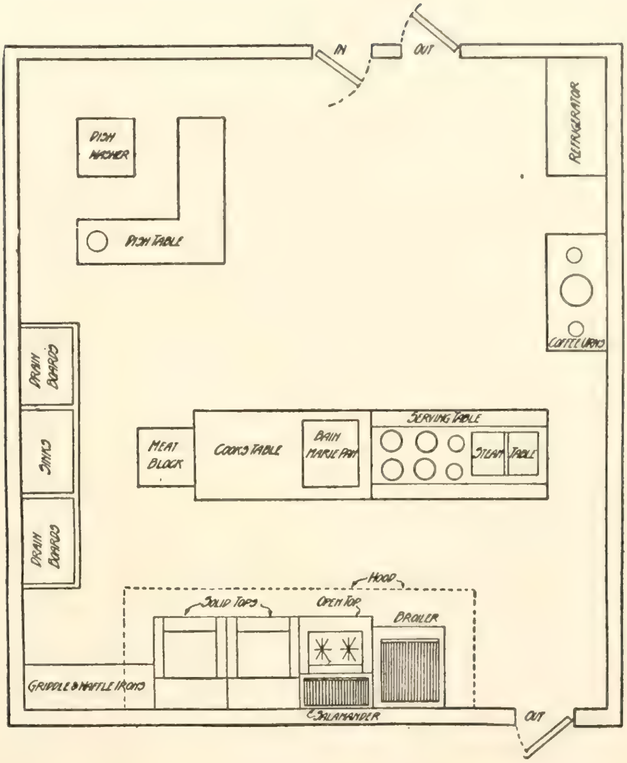


Fig. 93. Eight hundred meals a day are served from this kitchen.

APPENDIX G

FLOOR PLANS OF HOSPITAL KITCHENS

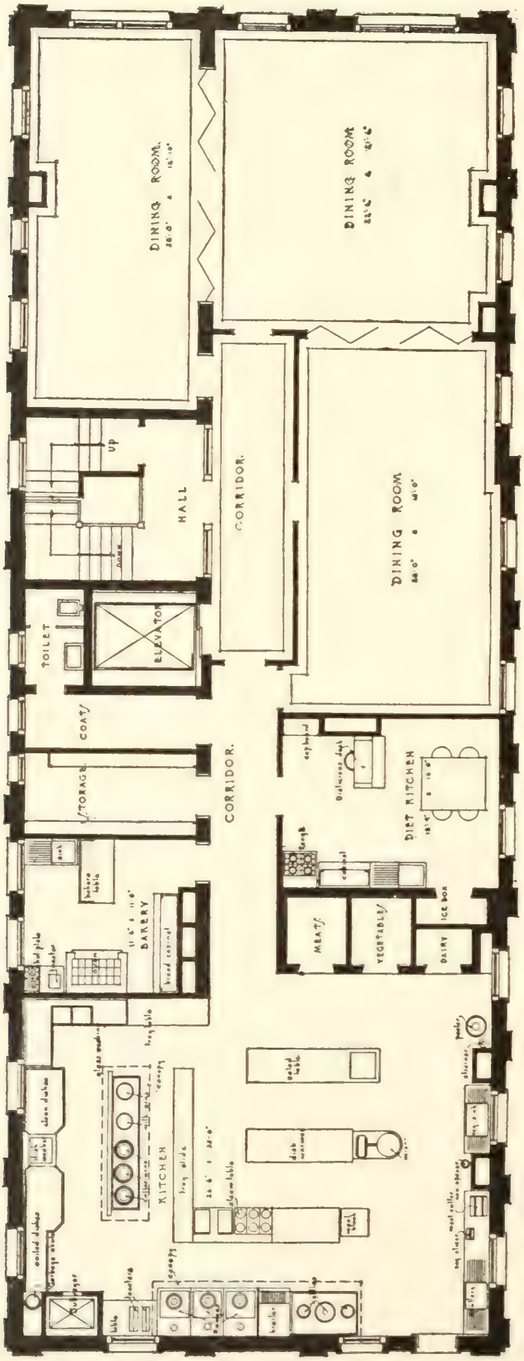


Fig. 94. From this kitchen the "Ford system" of setting trays is carried out, the subveyor, an important feature of the method, being located in the upper left corner of the drawing. Note the folding doors of the dining rooms which permit their use as one large room.

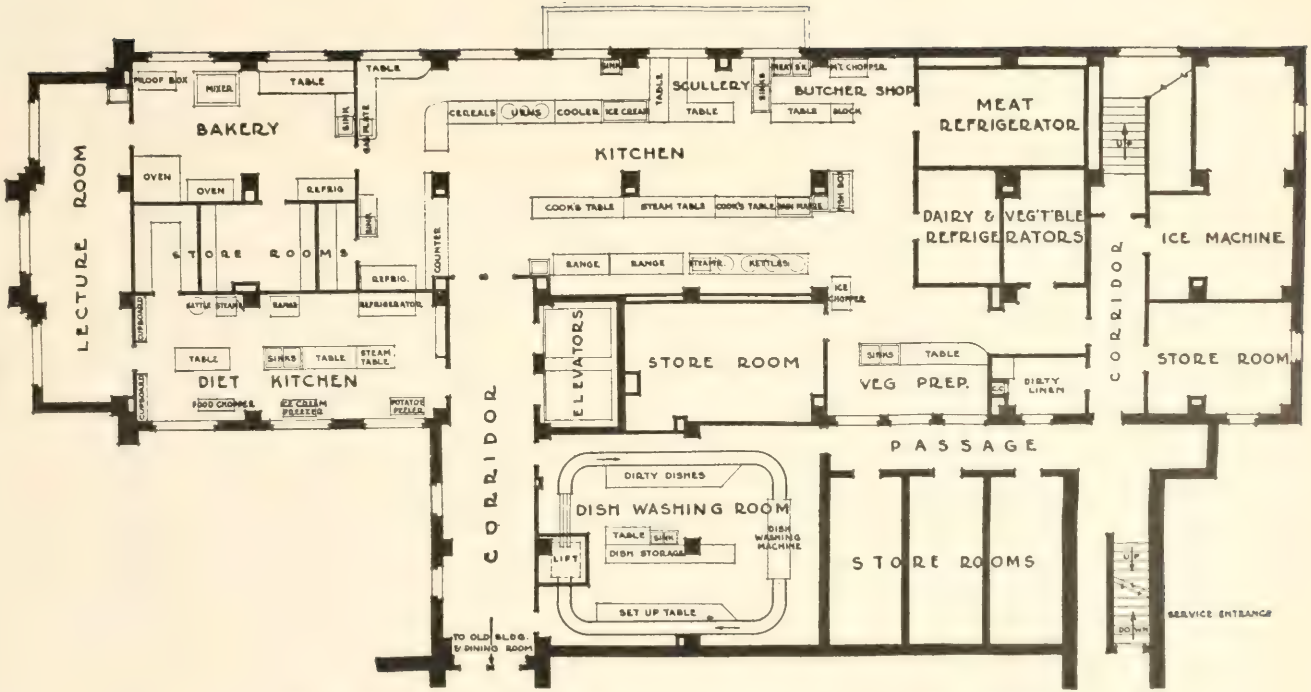


Fig. 95. A somewhat different kitchen plan for a large hospital.

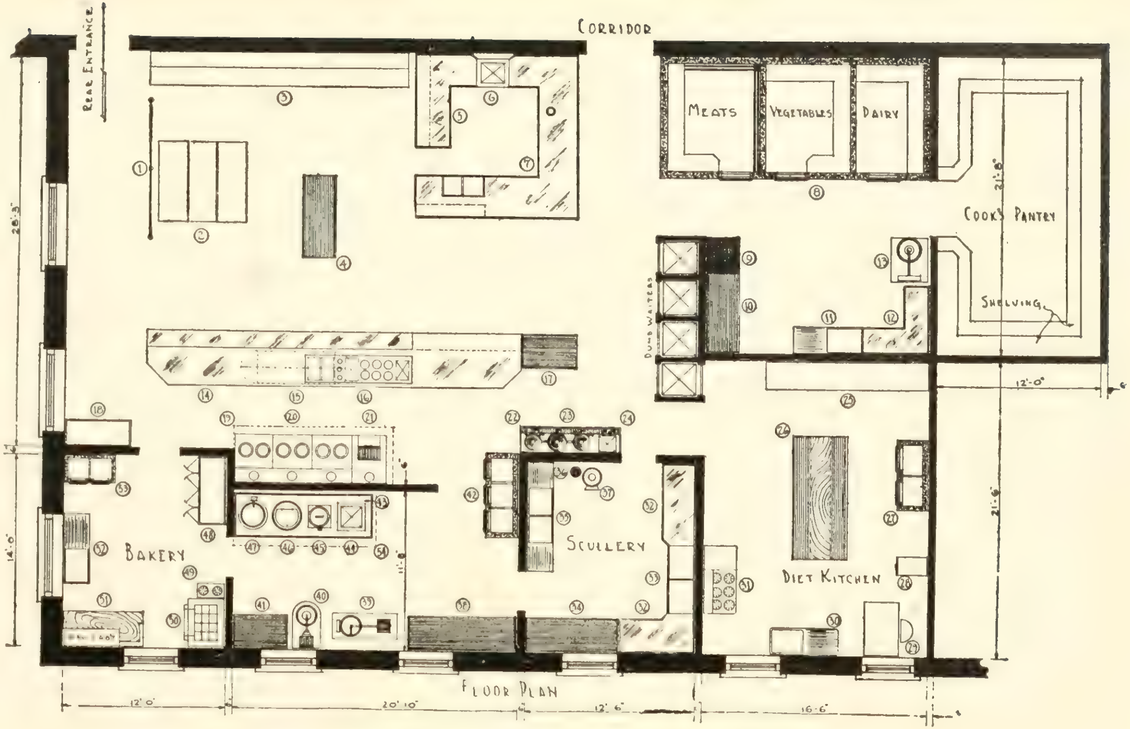


Fig. 96. Plan of typical kitchen for a 125-bed hospital.

KEY TO KITCHEN PLAN

1 Guard rail
2 Portable tray racks
3 Set up cabinet
4 Table
5 Clean dish table
6 Dishwasher
7 Soiled dish table
8 Storage refrigerator
9 Meat block
10 Bench
11 Sink
12 Drain table
13 Ice cream freezer
14 Cook's table and plate warmer
15 Sauce pan rack
16 Steam table
17 Table
18 Pot rack
19 Canopy
20 Range
21 Broiler
22 Urn stand
23 Coffee urns
24 Milk urn
25 Cabinet
26 Nurses' work table
27 Refrigerator
28 Files
29 Dietitian's desk
30 White enamel sink
31 Cabinet range
32 Pot tables
33 Pot sink
34 Vegetable table
35 Vegetable sink
36 Strainer
37 Vegetable peeler
38 Table
39 Food chopper
40 Cake mixer
41 Table
42 Service refrigerator
43 Drip pan
44 Steamer
45 Cereal cooker
46 Kettle
47 Roasting kettle
48 Bread case
49 Hot plate
50 Bake oven
51 Baker's table
52 Sink
53 Refrigerator
54 Canopy

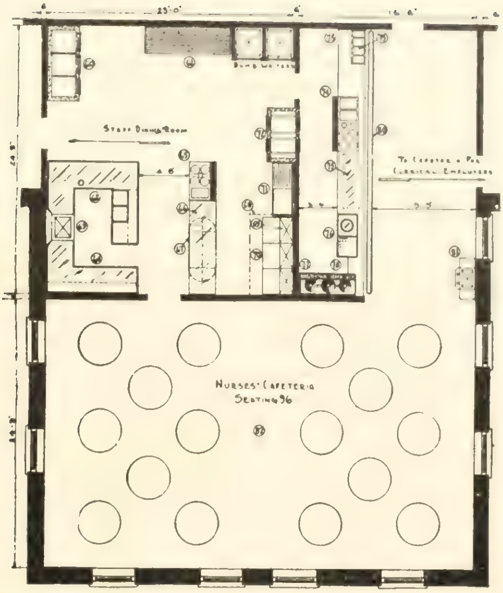

23'-0"
16'-6"
Staff Dining Room
Dumb Waiter
To Cafeteria for Clerical Employees
Nurses' Cafeteria Seating 96

Fig. 97. A compact accessible hospital unit.

KEY TO KITCHEN PLAN

60 Refrigerator
61 Table
62 Soiled dish table
63 Dishwasher
64 Clean dish table
65 Steam table
66 Cook's table
67 Pan rack
68 Canopy
69 Salamanders
70 Range
71 Sink
72 Refrigerator
73 Cafeteria counter
74 Steam table
75 Display shelving
76 Milk and ice cream cabinet
77 Urn stand
78 Coffee urns
79 Silver box
80 Slide rail
81 Cooler
82 Tables

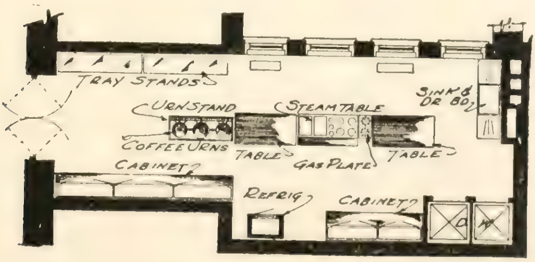


Fig. 98. A well-laid-out hospital service kitchen.

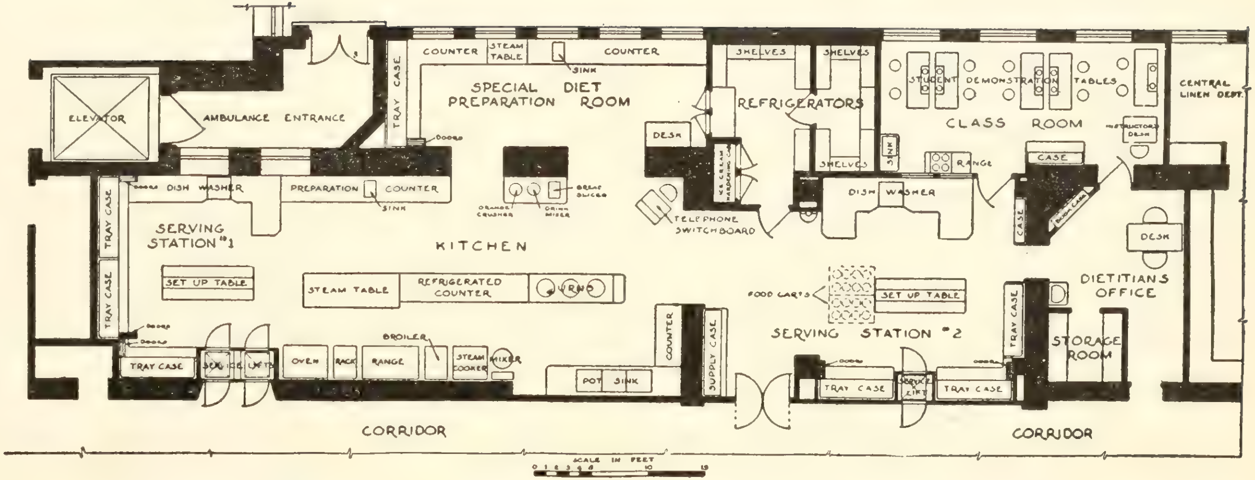


Fig. 99. An efficient kitchen in one of the newer hospitals.

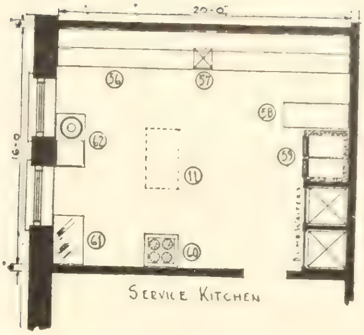


Fig. 100. A compact service kitchen in a medium sized hospital.

56 Set up cabinet
57 Electric toaster
58 Portable tray rack
59 Refrigerator
60 Range
61 White enamel table
62 Dish washer

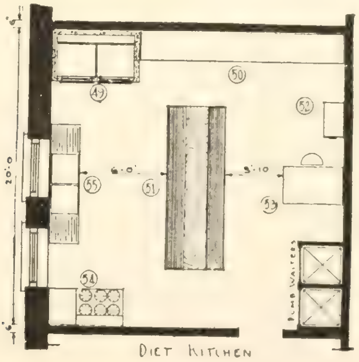


Fig. 101. Diet kitchen in a moderate sized hospital.

49 Refrigerator
50 Cabinet
51 Nurse's work table
52 Files
53 Dietitian's desk
54 Cabinet range
55 Sinks

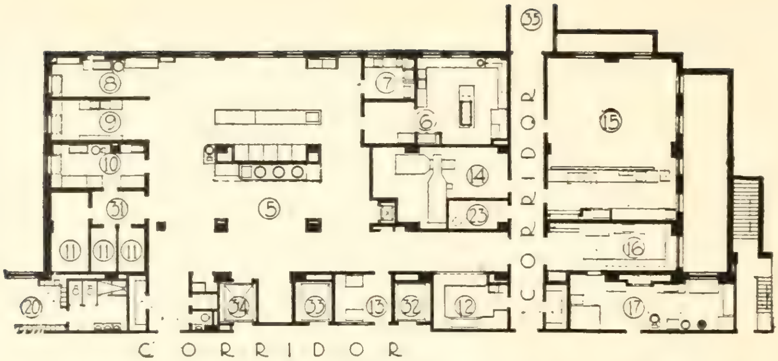


Fig. 102. This layout makes it possible to give speedy service.

5 Main kitchen
6 Diet kitchen
7 Milk kitchen
8 Vegetable preparation
9 Scullery
10 Butcher shop
11 Refrigerators
13 Dietitian's and assistant dietitian's office
14 Fan rooms
15 Help's dining room
16 Salads
17 Bake shop
20 Female help's locker and toilet rooms
23 Soiled linen rooms
31 Vestibules
32, 33 and 34 Elevators
35 Tunnel to power house and nurses' home

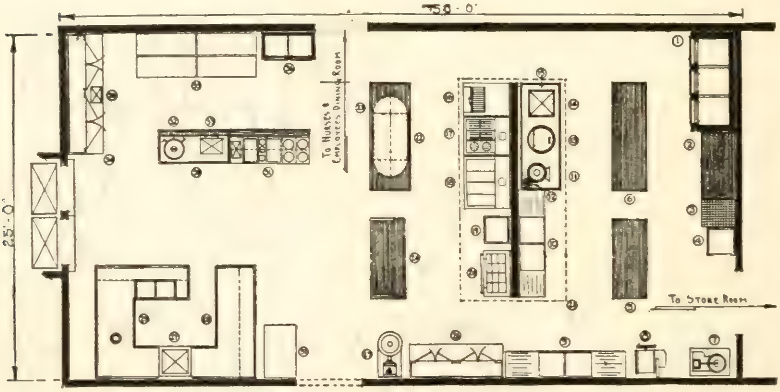


Fig. 103. Typical plan for a 75-bed hospital.

1 Refrigerators
2 Butcher's bench
3 Butcher's block
4 Sink
5 Work table
6 Work table
7 Freezer and crusher
8 Meat slicer
9 Pot sink
10 Vegetable sink
11 Potato peeler
12 Strainer
13 Jacketed kettle
14 Steamer
15 Drip pan
16 Broiler
17 Range
18 Range
19 Sink
20 Bake oven
21 Canopy
22 Cook's table
23 Sauce pan rack
24 Baker's table
25 Mixing machine
26 Baker's cabinet
27 Dishwasher
28 Clean dish tables
29 Soiled dish tables
30 Urn stand
31 Steam table
32 Combination coffee and water urns
33 Milk and cream urns
34 Cabinet
35 Tray racks
36 Refrigerator
37 Food conveyor
38 Automatic toaster

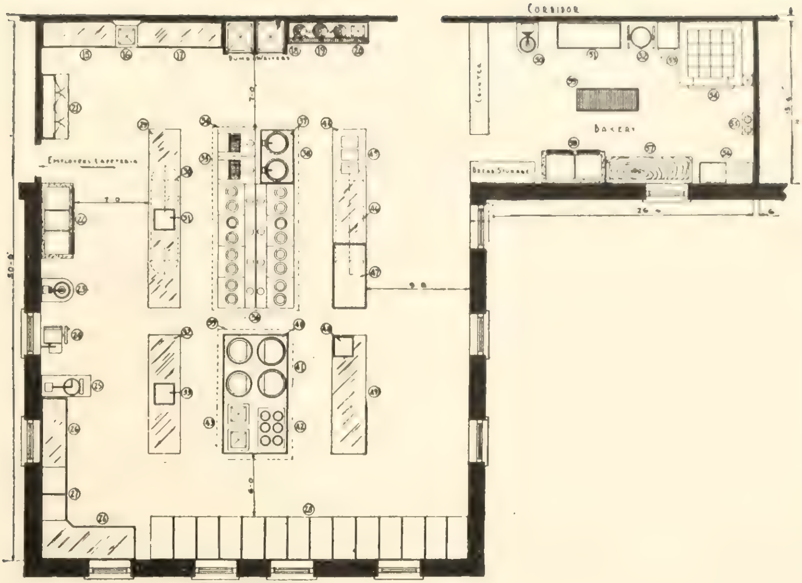


Fig. 104. A well-laid-out kitchen.

15 Clean dish table
16 Dishwasher
17 Soiled dish table
18 Urn stand
19 Coffee urns
20 Milk urn
21 Dish cabinet
22 Service refrigerator
23 Cake mixer
24 Meat slicer
25 Food chopper
26 Pot tables
27 Pot sinks
28 Food conveyors
29 Cook's table
30 Pan rack
31 Sink
32 Table
33 Sink
34 Canopy
35 Broilers
36 Range
37 Drip pan
38 Roasting kettles
39 Canopy
40 Drip pan
41 Kettles
42 Cereal cooker
43 Steamers
44 Cook's table
45 Steam table
46 Pan rack
47 Bain Marie
48 Sink
49 Table
50 Cake mixer
51 Dough trough
52 Tilting kettle
53 Proof box
54 Bake oven
55 Hot plate
56 Sink
57 Baker's table
58 Refrigerator
59 Bread rack

APPENDIX H

FLOOR PLANS OF CLUB KITCHENS

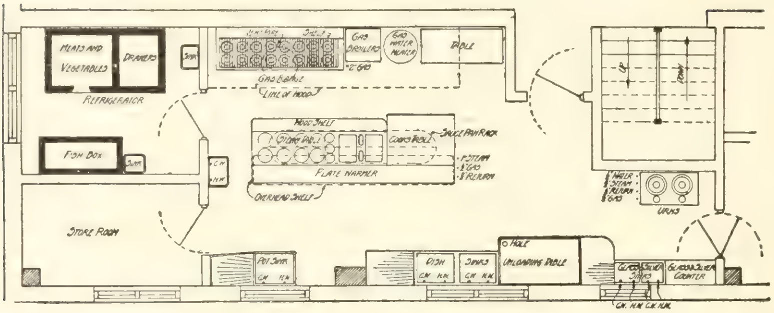


Fig. 105. Layout of a club kitchen where space is limited. A kitchen of this shape makes much more work for waiters.

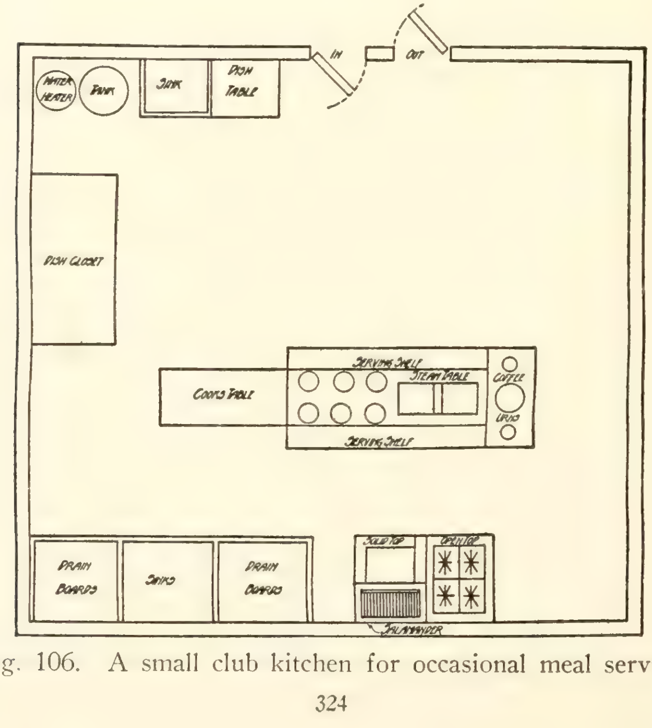


Fig. 106. A small club kitchen for occasional meal service.

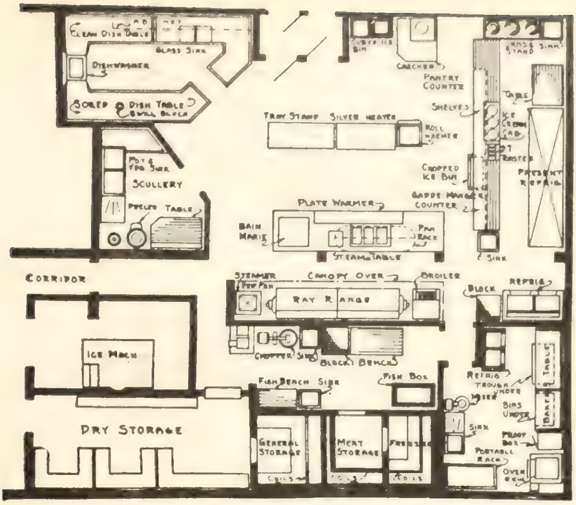


Fig. 107. An efficient kitchen in a busy club.

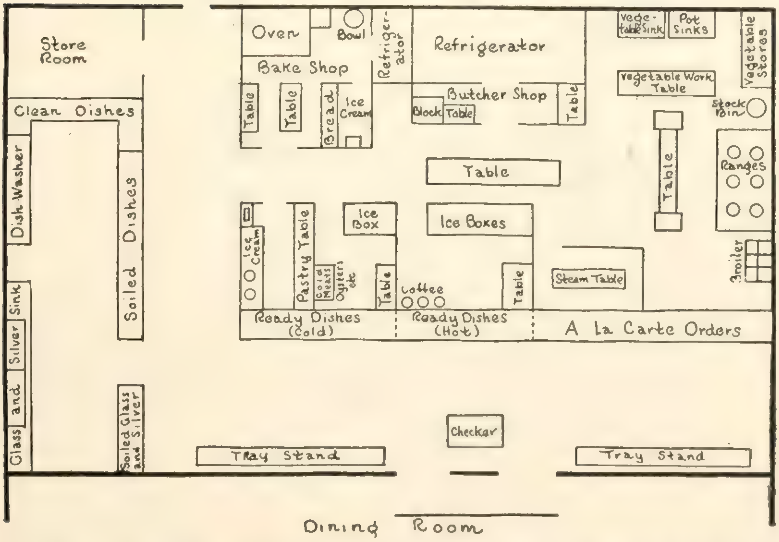


Fig. 108. This is a prize winning club kitchen laid out by a well-known chef.

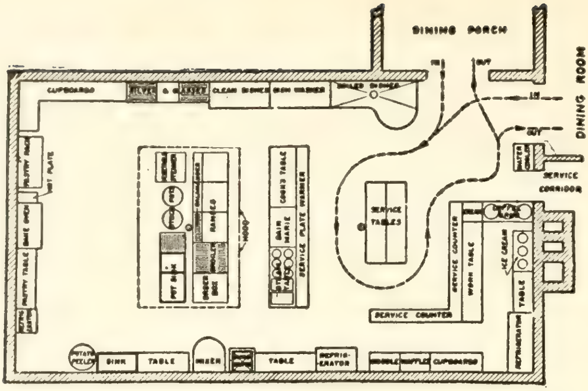


Fig. 109. Two services from a single club kitchen.

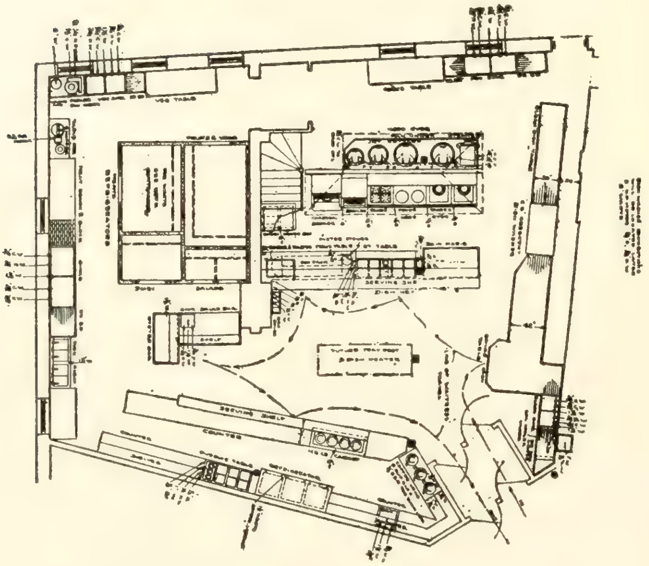


Fig. 110. This floor plan shows the route followed by waitresses. Note the six foot passageway between the kitchen and dining room. This lessens noise in the dining room.

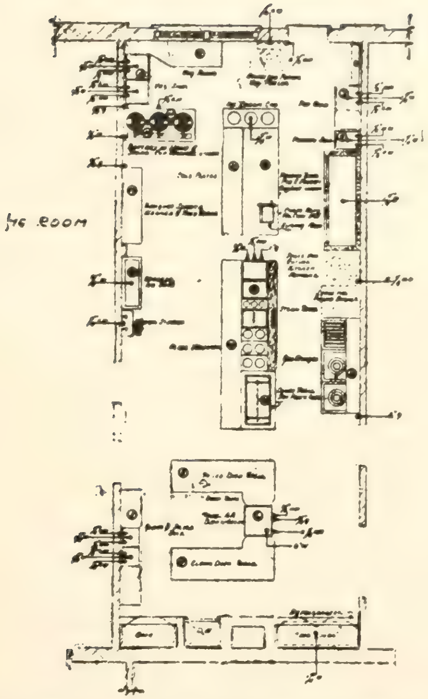


Fig. 111. An exit from the kitchen to the dining room, close to the battery of urns, would save many steps in this kitchen if structural changes were possible.

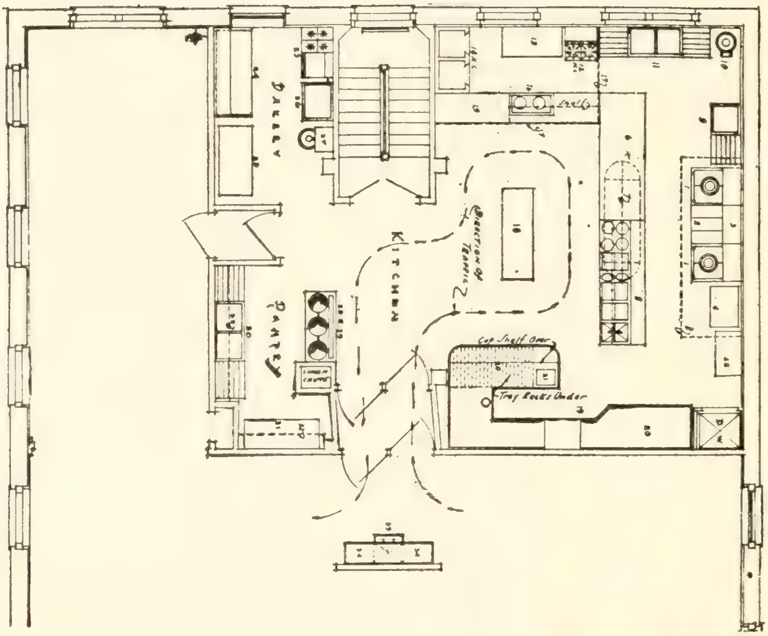


Fig. 112. Direction of traffic in a well-planned kitchen.

1 Ranges
2 Spreader plate
3 Plate shelf
4 Griddle, broiler and toaster
5 Canopy over
6 Cooking table
7 Pot rack over
8 Steam table
9 Pot sink
10 Vegetable parer
11 Vegetable sink
12 Range N. C.
13 Work table
14 Refrigerator N. C.
15 Pantry counter
16 Ice cream cabinet
17 Wire enclosure
18 Tray tables and plate warmer
19 Dishwasher
20 Dish tables
21 Soaking sink
22 Table
23 Bake oven
24 Baker's table
25 Range and oven
26 Pan sink
27 Mixer
28 Urns
29 Cup warmer under
30 Glass and silver sink
31 Work table
32 Shelving
33 Water cooler
34 Shelves over

APPENDIX I

FLOOR PLANS OF DISH AND SILVER WASHING DEPARTMENTS

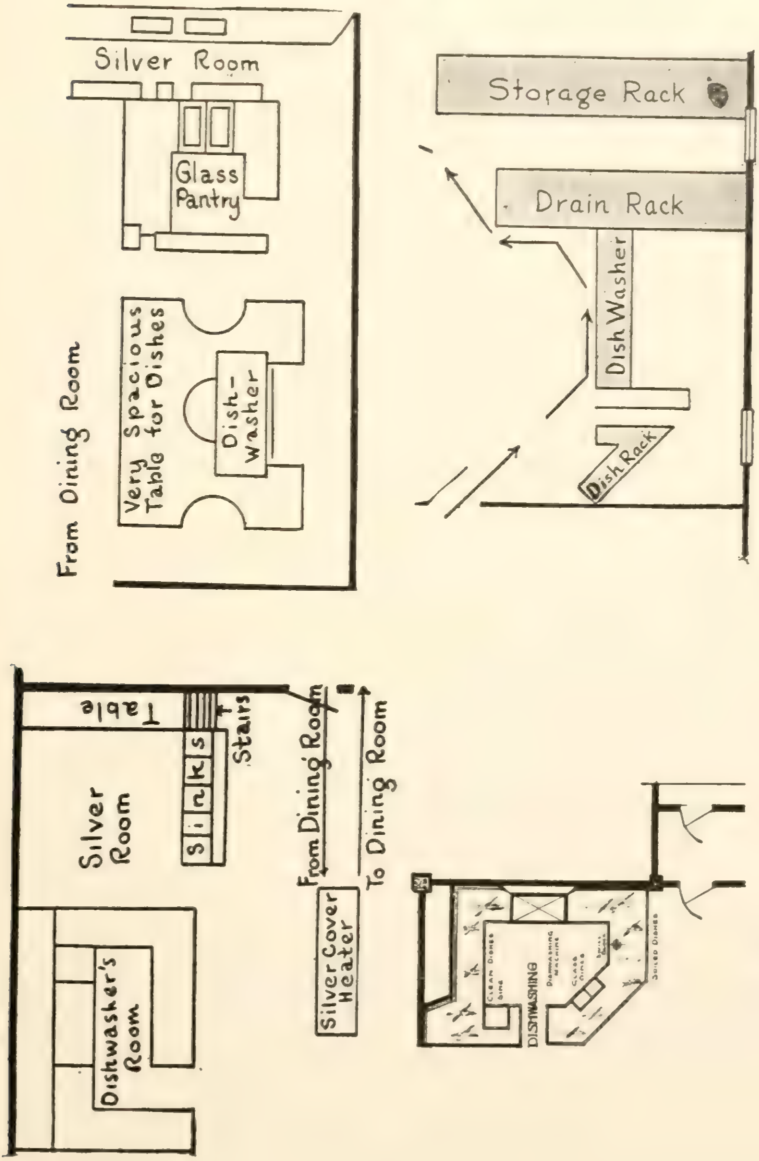


Fig. 113. A study in efficiently laid out dishwashing departments.

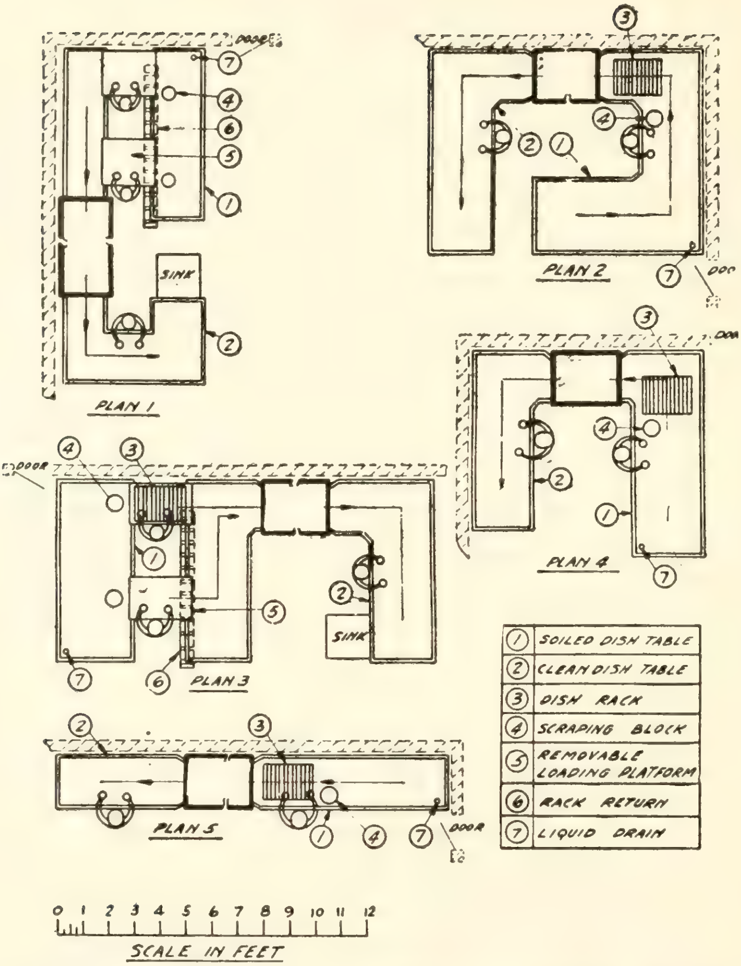


Fig. 114. Five layouts for dishwashing departments. This makes it possible to make department layouts to conform with the available space.

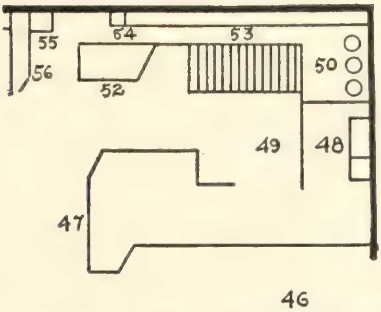


Fig. 115. A compact dish- and silver-washing department.

46 Entrance to dining room
47 Glass stand
48 Dish washing machine
49 Work table and tray rack
50 Boiler to wash silver
51 Work table
52 Work table
53 Table for silverware
54 Steel knife machine
55 Silver polish machine
56 Work table

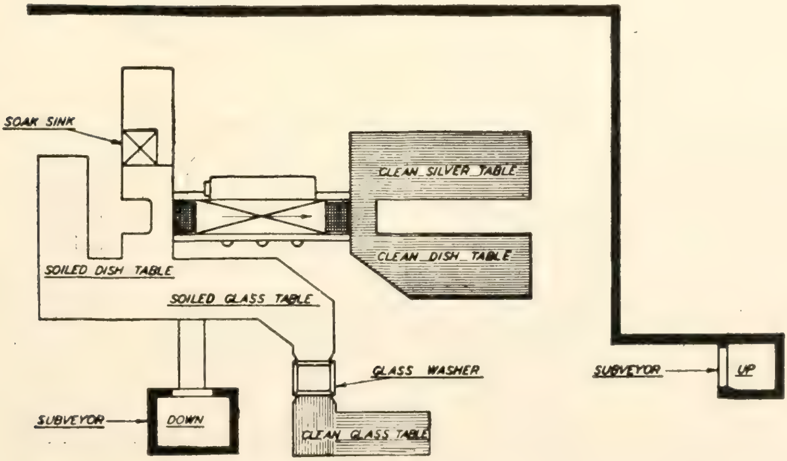


Fig. 116. Dishwashing department in which a subveyor is used.

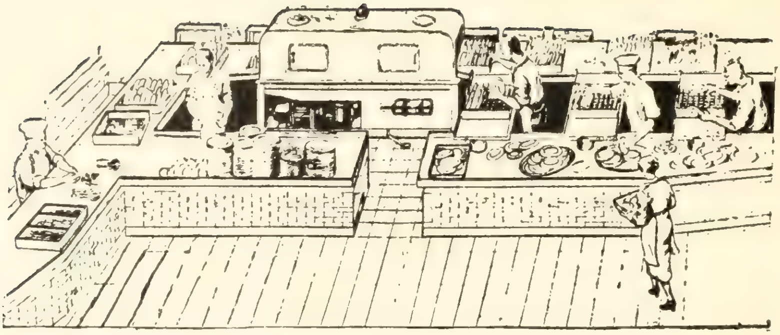


Fig. 117. A unique study of dishwashing layout.

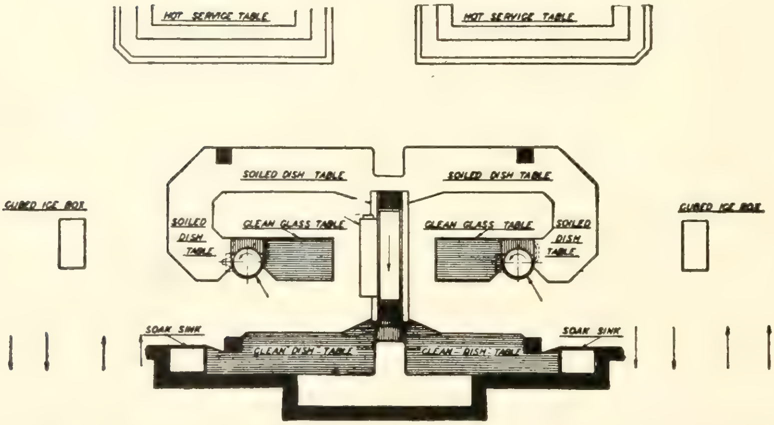


Fig. 118. An example of the double unit system as outlined in the chapter on dishwashing.

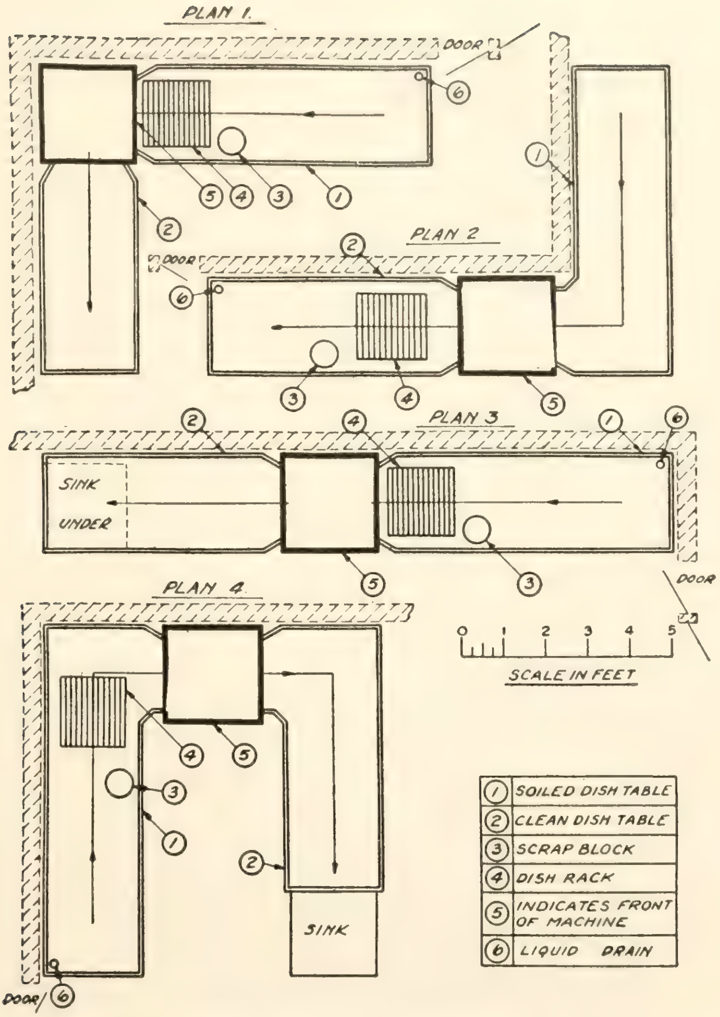


Fig. 119. Four potential plans for dishwashing machine layout.

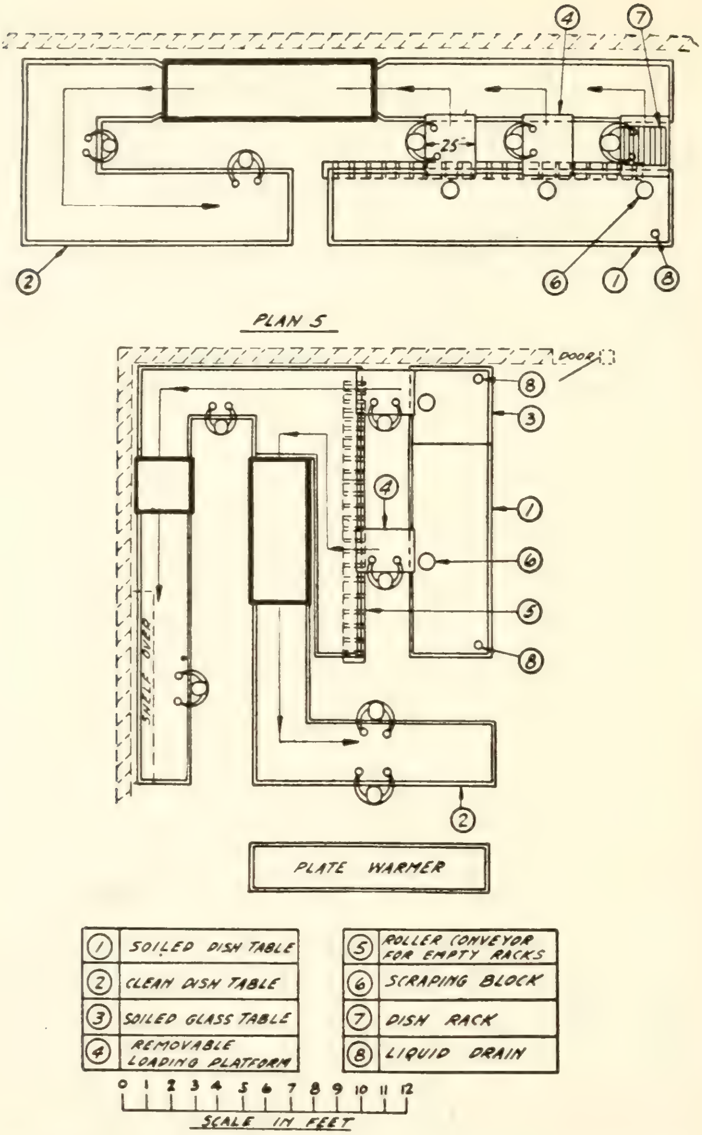


Fig. 120. Two plans for large dishwashing departments.

APPENDIX J

FLOOR PLANS OF INSTITUTION AND INDUSTRIAL KITCHEN

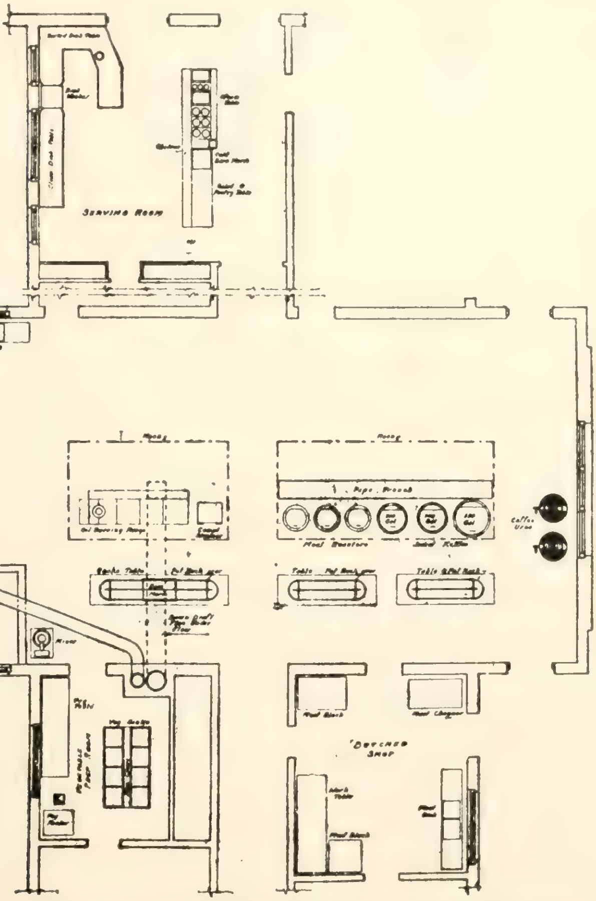


Fig. 121. This kitchen is in a school for feeble-minded. The serving room is well planned for speedy service. When possible it is advisable to eliminate serving rooms. They are often excuses for efficiency that increase the costs of preparation and food service.

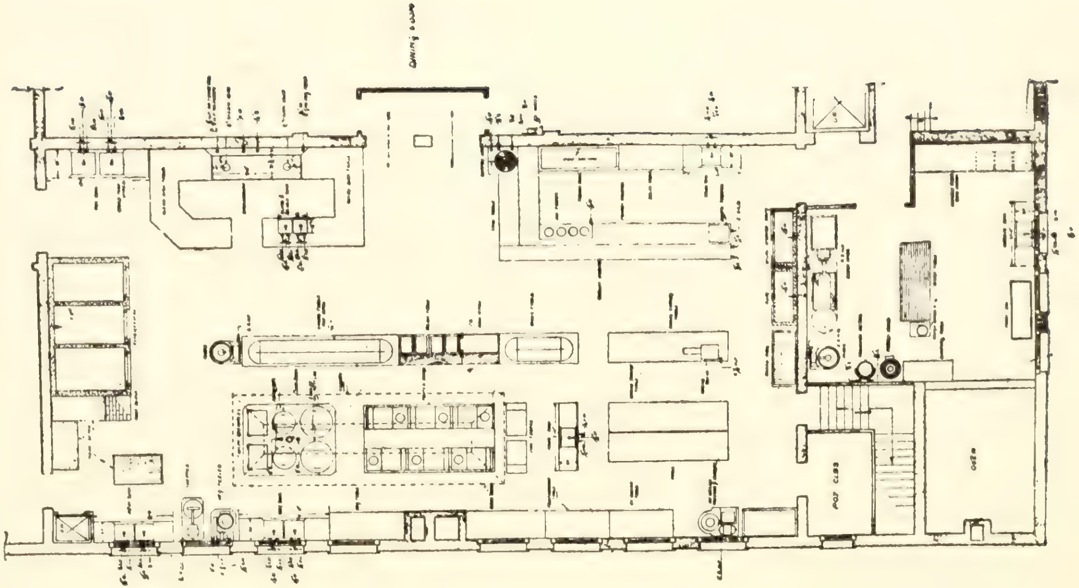


Fig. 122. Kitchen in a school for women. It is unusually well planned for this form of service.

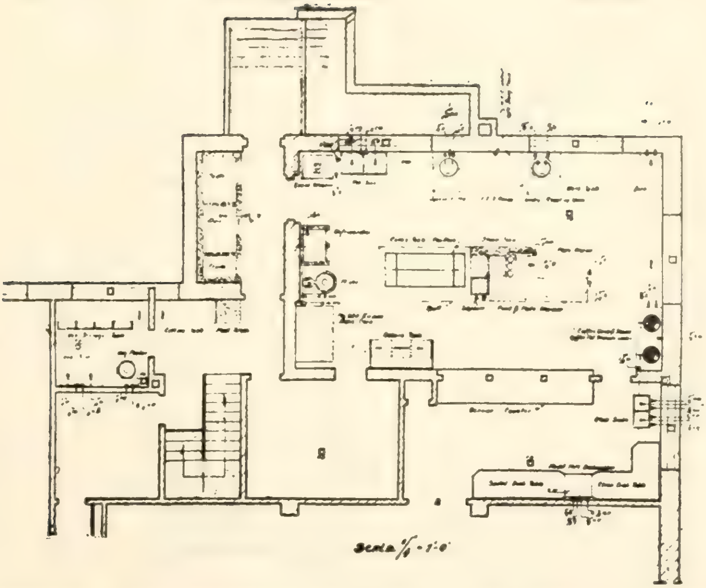


Fig. 123. Study of a kitchen for a monastery. Structural difficulties make it impossible to overcome some of the obvious errors in locating equipment.

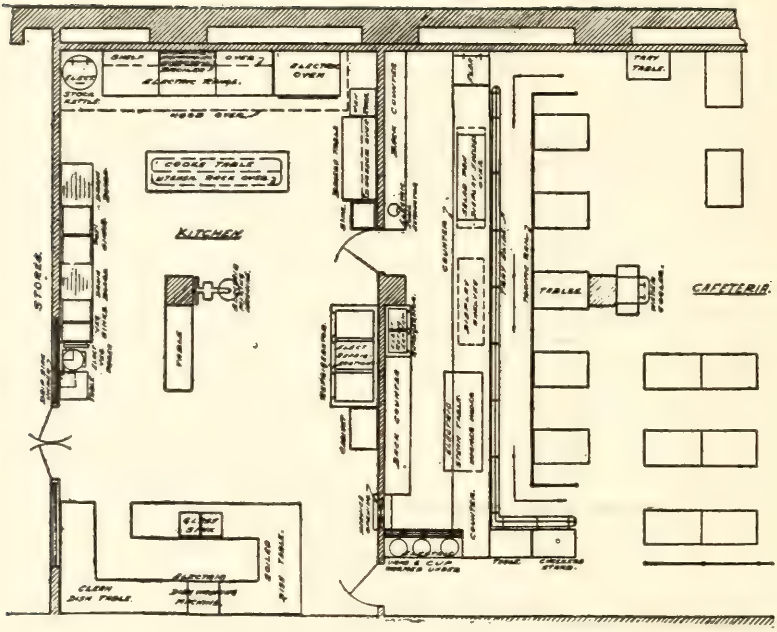


Fig. 124. An industrial cafeteria that labors under fewer errors in layout than those in most institutions of this kind.

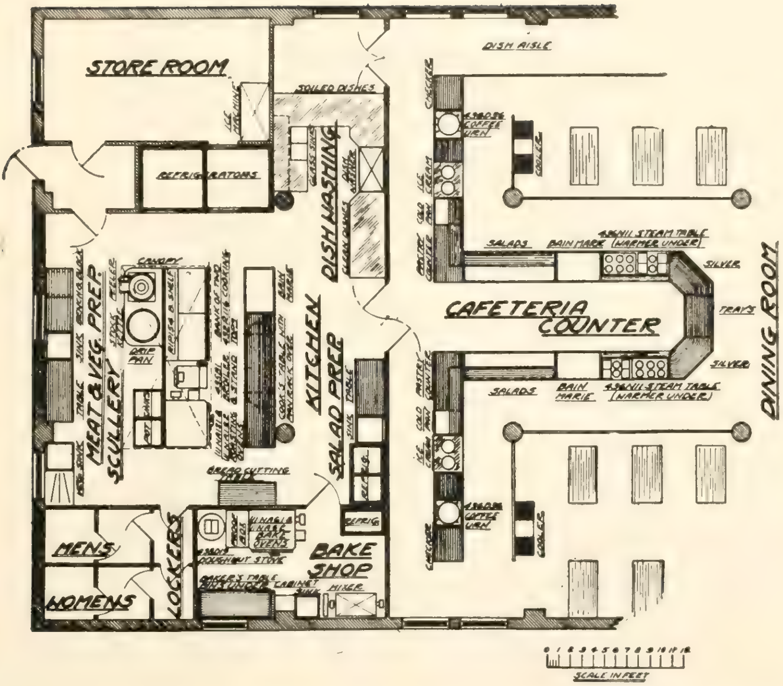


Fig. 125. This industrial cafeteria kitchen takes care of the service of 750 persons a meal. It is an excellent example of compactness.

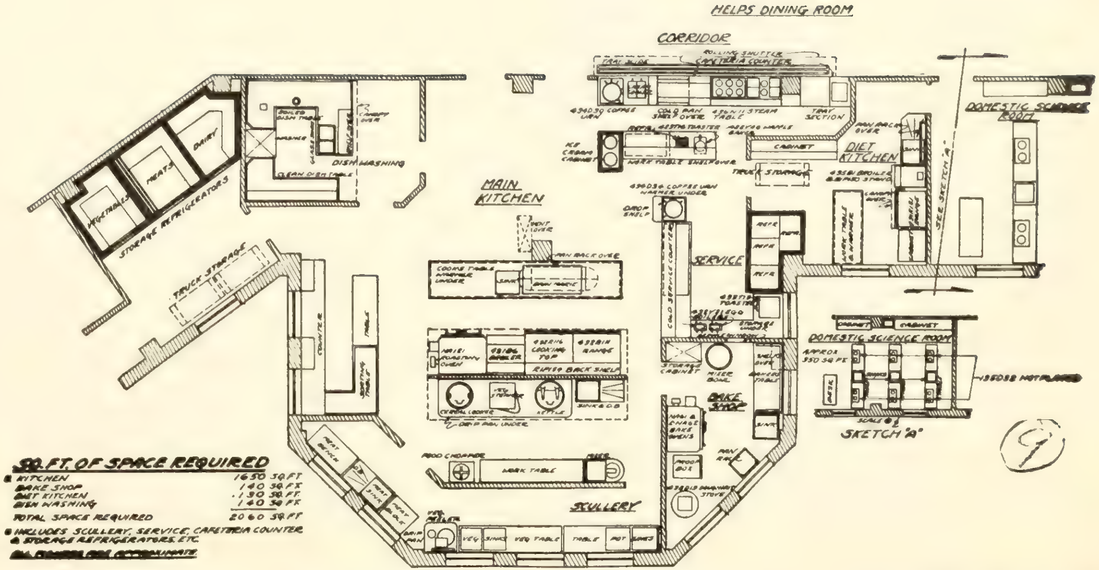


Fig. 126. Unusually effective use of space which is difficult to plan. Six hundred meals a day are served from this kitchen.

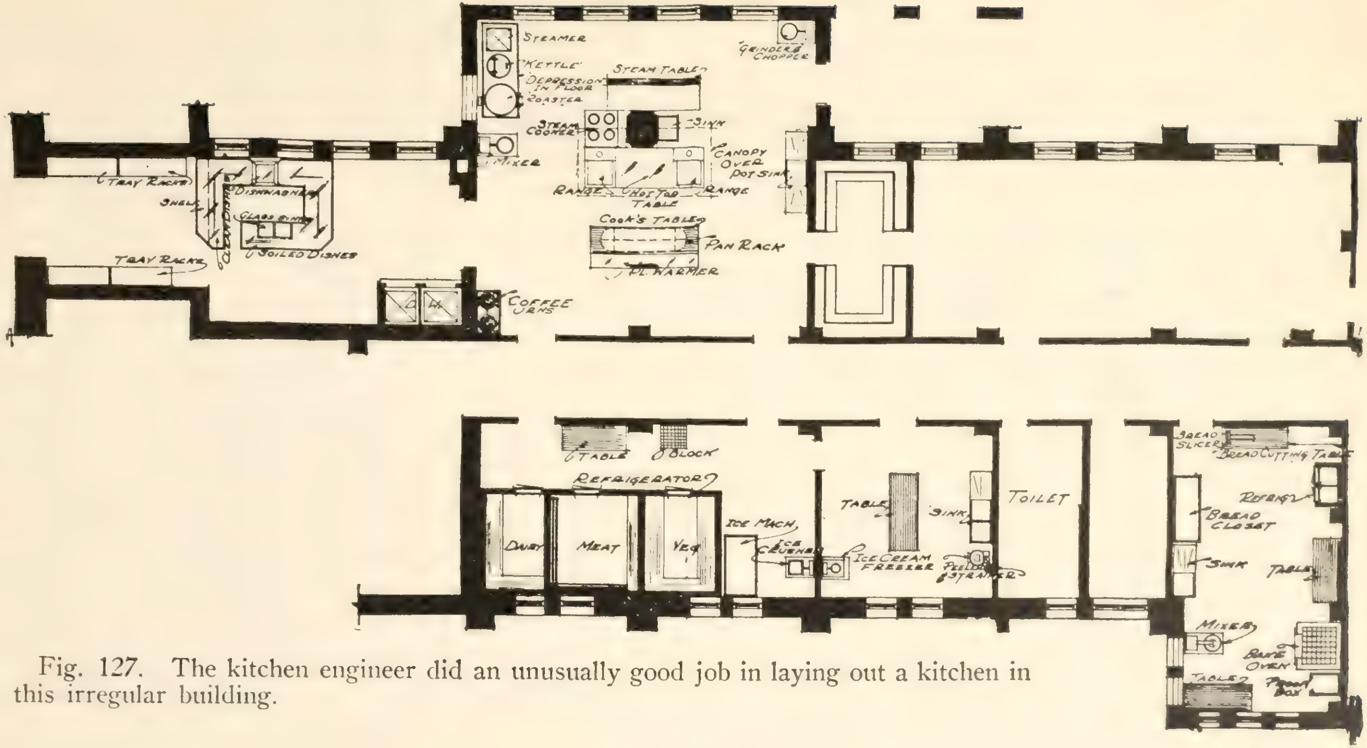


Fig. 127. The kitchen engineer did an unusually good job in laying out a kitchen in this irregular building.

APPENDIX K

WEIGHTS, MEASURES AND TESTS

The following table gives the weights of commodities for which bushel weights have been established in 6 or more states.

	Most Common Weight	
	No. of Pounds	No. of States
Apples	48	20
Apples, dried	24	20
Beans	60	40
Beets	56	11
Carrots	50	30
Corn on ear	70	30
Corn shelled	56	43
Corn meal	50	19
Cucumbers	48	18
Onions	57	20
Parsnips	50	15
Peaches	48	22
Peaches, dried	33	22
Peanuts	22	15
Pears	58	6
Peas, green unshelled	28	6
Potatoes (Irish)	60	39
Potatoes (Sweet)	50	15
Quinces	48	19
Salt	50	9
Tomatoes	56	19
Turnips	55	17
Wheat	60	45

Capacity Standards

A liter is a unit of capacity equivalent to the volume occupied by the mass of 1 kilogram of pure water. It is equivalent in volume to 1.000027 cubic decimeters.

A gallon is a unit of capacity equivalent to the volume of 231 cubic inches. It is used for the measurement of liquid commodities only.

A bushel is a unit of capacity equivalent to the volume of

2150.42 cubic inches. It is used in the measurement of dry commodities only.

MULTIPLES AND SUB-MULTIPLES						Cubic Inches
1 liquid quart	= 1/4	gallon			=	57.57
1 liquid pint	= 1/8	gallon	= 1/2	liquid quart	=	28.88
1 gill	= 1/32	gallon	= 1/4	liquid pint	=	7.22
1 peck	= 1/4	bushel			=	537.61
1 dry quart	= 1/32	bushel	= 1/8	peck	=	67.20
1 dry pint	= 1/64	bushel	= 1/2	dry quart	=	33.60
1 barrel (for fruit, vegetables, etc.) = 7056 (or 105 dry qts.)						
1 firkin	= 9	gallons				
1 fluid ounce	= 1/128	gallon	= 1/16	liquid pint		
1 fluid dram	= 1/8	fl. oz.	= 1/128	liquid pint		
1 minim	= 1/60	fl. dram	= 1/480	fluid ounce		

The pint and the quart dry measures are about 16% larger than the pint and quart liquid measures.

MEASURES OF CAPACITY

Metric Denominations and Values			Equivalents in Denominations in Use	
Names	No. of Liters	Cubic Measure	Dry Measure	Liquid or Wine Measure
Kiloliter or stere.	1,000	1 cu. meter	1.308 cu. yds.	264.17 gallons
Hectoliter......	100	1/10 of a cubic meter	2 bushels and 3.35 pecks	26.417 gallons
Dekaliter......	10	10 cu. decimeters	9.08 quarts	2.6417 gallons
Liter..........	1	1 cu. decimeter	0.908 quarts	1.0567 quarts
Deciliter.......	1/10	1/10 of a cubic decimeter	6.1022 cu. inches	0.845 gill
Centiliter......	1/100	10 cu. centimeters	0.6102 cu. inches	0.338 fl. oz.
Milliliter.......	1/1000	1 cu. centimeter	0.061 cu. inches	0.27 fl. dr.

EQUIVALENTS OF CAPACITY

3 teaspoons ¼ fluid ounce 4 fluid drams 15 cu. centimeters	Equal 1 tablespoon

½ lb. granulated sugar	Equal 1 cup
½ lb. butter, lard, rice	
¼ lb. flour	
5 oz. cornmeal	
2 oz. bread crumbs	
6 oz. raisins (stemmed)	

16 tablespoons	Equal 1 cup
2 gills	
½ liquid pint	
8 fluid oz.	
237 cu. centimeters	

1 cubic foot of ice weighs 57.2 pounds

Milk and Cream Weights

Milk is slightly heavier than water, its specific gravity ranging from 1.029 to 1.034 at 60° Fahrenheit. This means that while a quart of water weighs 2 pounds and 1.333 ounces, a quart of milk weighs from 1.029 to 1.034 times as much or 2 pounds 2.5 ounces. The specific gravity depends upon the proportion of water and other substances. Since fat is lighter than water the richer the milk is in butter fat the lower its specific gravity, provided, of course, that the other solids have increased proportionally. It follows also that the removal of fat increases the specific gravity so that skim milk has a specific gravity of from 1.033 to 1.037. On the other hand the addition of water to skimmed milk brings down the specific gravity.

A quart of 40% cream weighs 2.070 lbs.
A quart of 25% cream weighs 2.097 lbs.

Sizes of Cans

The can in canned food products serves not only as a container but also as an index of the quantity of food therein. It should be as full of food as is practicable for packing and processing without injuring the quality or appearance of the contents; further, the cans or labels should bear a plain and conspicuous statement of the quantity of the contents. Below are listed official measurements of standard sanitary cans.

	Diameter	Height
No. 1 size	2 11/16 inches	4 inches
No. 2 size	3 7/16 inches	4 9/16 inches
No. 2½ size	4 1/16 inches	4 11/16 inches
No. 3 size	4¼ inches	4⅞ inches
No. 10 size	6 3/16 inches	7 inches

Peaches:

No. 1	size contents weigh	10.5 oz.
No. 2	size contents weigh	13.5 oz.
No. 2½	size contents weigh	1 lb. 4 oz.
No. 10	size contents weigh	4 lb. 4 oz.

The above are "drained" weights. The weight for No. 10 cans does not apply to pie peaches. In view of the fact that the weight of properly filled No. 10 cans of pie peaches varies considerably it is not deemed advisable to specify a definite drained weight, the No. 10 cans of pie peaches should be judged on the appearance and particular circumstances in each case.

Pears:

No. 1	size contents weigh	10.5 oz.
No. 2	size contents weigh	13.0 oz.
No. 2½	size contents weigh	1 lb. 3 oz.
No. 3	size contents weigh	1 lb. 6 oz.
No. 10	size contents weigh	4 lb. 3 oz.

The above weights refer only to relatively firm pears in halves; in the case of soft and broken halves these weights can and should be exceeded. While the above weights represent, in general, properly filled cans, variation in the character of the fruit may in some cases cause a variation from these weights. A full can, however, should in all cases contain the greatest amount of pears which it is possible to pack therein without impairment of quality regardless of the exact drained weight obtained.

Pitted Cherries:

No. 1	can size contents weigh	7.5 oz.
No. 2	can size contents weigh	12.5 oz.
No. 2½	can size contents weigh	1 lb. 2.5 oz.
No. 10	can size contents weigh	4 lb. 6 oz.

(Water or juice pack)

Because of variation in conditions cans filled to capacity may in a few cases yield drained weights slightly less than those here listed, while in many instances weights in excess of those mentioned can and should be attained.

A can of a size not named should yield a drained weight bearing the same relation to the weight indicated for the can nearest in size as that existing between the capacities of the cans in question.

TESTS

The following tests on a few commodities may prove of interest and are typical examples of data which we compile.

Olives:

Size—80/90

5 gal. gross weight	52 lb. 8 oz.
Price per gallon	$1.50
Total cost	$7.50
Weight of empty keg	7 lb. 8 oz.
Weight of brine	17 lb. 2 oz.
Weight of olives	27 lb. 14 oz.
Gross weight as purchased	52 lb. 8 oz.

Weight of olives and brine	45 lb.
Weight of 1 gallon olives minus brine	5 lb. 9 1/5 oz.
Weight of 1 quart	1 lb. 6 1/3 oz.
Weight of 1 cup	5 1/2 oz.

	No.	Cost
No. of 80/90 olives in 1 gallon	204	$1.50
No. of 80/90 olives in 1 quart	51	.37½
No. 80/90 olives in 1 cup	13	.094
Cost of each olive		.007

1 kilogram equals 2 2/10 lb.

27 lb. 14 oz. equals 446 grams

Therefore, divide 446 grams by 2.2 lb. = 12.74 kilograms in 27 lb. 14 ounces. 12.74 kilograms times the number of olives to kilogram 80's (12.74 x 80) equals 1,019.20 olives.

As per count	1,020
As per kiloweight	1,019.20
	0,000.80 over per count

Green Peas:

1 hamper or 1 bushel

Gross weight 27 lb. 12 oz.

Price per hamper $2.25

Weight before shelling	24 lb. 14 oz.
Weight of hamper or container	2 lb. 14 oz.
Gross weight	27 lb. 12 oz.

Weight of peas after shelling	8 lb. 14 oz.
Weight of shells	16 lb.
Total weight	24 lb. 14 oz.

% of shells to total weight	64.3%
% of peas to total weight	35.7%
	100.0%

Cost per lb. as purchased	$0.0905
Cost per lb. of peas after shelling	.2535
Weight of peas after cooking	8 lb. 4 oz.
Weight of peas lost in cooking	10 oz.
% of loss in cooking	7.04%
Weight of a la carte portion as sold	4 oz.
Number of portions from hamper after cooking	33
Amount of butter used for 33 portions	½ lb.
Price per pound for butter	$0.44
Cost of peas per portion as served	.06818
Cost of butter per portion of peas	.00666
	.07484
Bill of fare price	$0.30
Sale from 33 portions	9.90
Cost of 33 portions	2.47
Profit	$7.43
Percentage of profit	301%

1 cup of shelled raw peas weigh 4 oz. or 4 cups to a quart or pound.

Canned Peas:

1 gallon sweet wrinkled June peas weigh	7 lb.
After draining	4 lb. 6 oz.
Cost, per gallon	$0.84
Cost, per pound	.192

New Zealand Spinach:

Gross weight of 1 hamper of spinach	36 lb.
Weight of empty hamper	10 lb. 8 oz.
Net weight of spinach as purchased	25 lb. 8 oz.
Weight lost in picking	11 lb.
% of loss through picking	43%
Weight ready for cooking	14 lb. 8 oz.
Loss in cooking	9 lb.
% of weight lost in cooking	62%
Total loss in one hamper	20 lb.
% of loss in 1 hamper	78.43%
% of spinach to original weight	21.57%
	100.00%

Weight of 1 hamper of spinach cooked with ingredients and butter added:

5 lbs. 12 oz. or 2 qts.	1¾ pints
1 quart weighs 2 pounds	
Number of portions from 1 hamper	23
Bill of fare price	$0.25

Helen Murphy in *The Alarm Clock*

APPENDIX L

STANDARDIZED PORTIONS

The following standardized portions have been compiled from lists furnished by several of the leading hotels of the country.

TEAS, COFFEES, MILK, ETC.

Cocoa or Chocolate	½ oz.
Coffee	1 1/16 oz.
Tea	½ oz.
Postum	1 oz.
Buttermilk	½ pint
Cream	½ pint
Milk, small bottle	½ pint

STEWS, HASH, ETC.

Braised Beef Ends with Bone	12 ozs.
Corned Beef Hash	6 ozs.
Corned Beef Hash, with egg	5 ozs. meat, 1 egg
Corned Beef Hash, with green peppers	5 ozs. meat, 1 oz. peppers
Roast Beef Hash	Same as Corned Beef Hash
Roast Beef Hash, with egg	Same as Corned Beef Hash
Roast Beef Hash, with green peppers	Same as Corned Beef Hash
Lamb Hash	Same as Mutton Hash
Lamb Stew	8 ozs.
Mutton Hash	4 ozs. mutton, 1½ ozs. potatoes
Ox Tail, all styles	8 ozs.
Pork and Beans	2 ozs. pork, 4 ozs. beans
Smoked Beef in Cream	3½ ozs. beef
Tripe, all styles	5 ozs.

BOILED DISHES, ETC.

Boiled Corned Beef with Cabbage	6 ozs. beef, 3 ozs. cabbage
Boiled Leg of Mutton, English style	6 ozs. meat, 2 ozs. vegetables Total weight, 8 ozs.
Boiled New England Dinner	2 ozs. salt pork 2 ozs. corned beef 2 ozs. boiled brisket beef and vegetables Total weight, 8 ozs.

BOILED DISHES—*Continued*

Boiled Ox Tongue with Spinach	5 ozs. tongue 5 ozs. spinach
Boiled Short Ribs of Beef with Bone	12 ozs.

ROASTS, MEATS

Beef, Roast Sirloin of	5 ozs.
Beef, Roast Larded Filet of	4 ozs.
Lamb, Roast	6 ozs.
Mutton, Roast	6 ozs.
Pork Loin, Roast	6 ozs.
Pork Leg, Roast	6 ozs.
Suckling Pig, Roast	6 ozs.

SOUPS

Chicken Broth, hot or cold, in cup	1 cup
Chicken Gumbo	½ pint
Chicken Portugaise	½ pint
Chiffonade	½ pint
Clam Broth in Cup	1 cup
Colbert	½ pint
Consomme, hot or cold, in cup	1 cup
Croute au Pot	½ pint
Julienne	½ pint 2 ozs. vegetables
Mock Turtle	½ pint
Pate d'Italie	½ pint
Potage St. Germain	½ pint
Tortue Claire	½ pint 1 oz. turtle meat

PASTRIES AND PASTRY DEPARTMENT DISHES

Coupes	5 ozs.
Ice Creams	4 ozs.
Meringue Glace	4 ozs. ice cream 2 meringues
Parfaits	4 ozs.
Sherbets	4 ozs.
Deep Pies	2½ ozs. pastry, 5½ ozs. fruit in 6-inch baker
Flat Pie	6 portions from 9-inch pie
Pudding, Frozen	4 ozs.
Pudding, Hot	5 ozs.

FRUITS, FRESH AND STEWED

Apples	1, size 150
Apples, Baked	2, size 150
Alligator Pears	½ pear
Assorted Fruits	1 apple 1 banana 2 plums or apricots 5 ozs. grapes or cherries
Bananas	1
Bananas, Sliced, with Cream	1½ banana
Cantaloupe	½, unless otherwise ordered
Grapefruit	½, size 36s, unless otherwise ordered
Grapefruit Cocktail	1 fruit
Grapefruit Salad	1 fruit
Grapefruit Supreme	1 fruit
Grapes	6 ozs.
Oranges	1, size 126s
Oranges, Sliced	1, size 126s
Orange Juice	2, size 200s
Pears	1
Plums	5
Peaches	2
Peaches, Sliced	2
Pineapple, Canned	4 ozs.
Salad	½ grapefruit 1 orange ½ banana ½ apple
Stewed Prunes	7 prunes, 30—40 size, 5 ozs.
Dry Figs	5 ozs.
Canned and Preserved Fruits	4 ozs.

VEGETABLES

Asparagus, Fresh	7 pieces
Asparagus, French Argenteuil	6 pieces
Asparagus, Standard	6 pieces
Asparagus Tips	5 ozs.
Artichokes, Globe, Fresh	1—portion
Artichokes, Fonds	3 bottoms, 5 ozs.
Beans, Lima, Canned	5 ozs.
Beans, Lima, Fresh	5 ozs.
Beans, String, Canadian	4 ozs.
Beans, String, Franch	4 ozs.
Beans, Flageolets	6 ozs.

VEGETABLES—*Continued*

Beets	5 ozs.
Brussel Sprouts, Fresh	5 ozs.
Brussel Sprouts, Canned	5 ozs.
Cauliflower	5 ozs.
Carrots	5 ozs.
Cob Corn, Fresh	2 cobs
Cob Corn, Canned or Bottles	2 cobs
Egg Plant	3 pieces, 6 ozs.
Green Peppers	2 pieces, 4 ozs.
Mushrooms Fresh	2 ozs.
Mushrooms, Canned	2 ozs.
Mushrooms, under glass with bacon	2 ozs. mushrooms 2 ozs. bacon
Oyster Plant	4 ozs.
Onions	4 ozs.
Parsnips	5 ozs.
Peas, Green, Fresh or Canned	4 ozs.
Spinach	8 ozs.
Squash	4 ozs.
Succotash	4 ozs.
Tomatoes Stewed, Fresh or Canned	6 ozs.
Tomatoes Stuffed	1—4 ozs.
Turnips	5 ozs.

SALADS

Anchovy	Julienne of Lettuce, 1 ½ ozs. anchovies condiments Total weight, 5 ozs.
Asparagus Tips	5 ozs.
Boston Lettuce	½ head
Chicken	4 ozs. chicken ½ oz. celery ½ egg H.B. 1 olive
Chiffonade	5 ozs.
Celery Iced	1 stick split in four
Celery Salad	1 stick chiffonade
Cole-Slaw	4 ozs.
Lettuce and Tomatoes	½ head Lettuce 3 sliced tomatoes
Panachee	4 ozs.
Potato	6 ozs.
Red Cabbage	4 ozs.
Tomatoes	6 slices tomatoes
Waldorf	5 ozs.

SALADS—(*Continued*)

Salad Dressings,	
Roquefort Dressing,	
Ravigotte Sauce,	
Russian Dressing,	
Thousand Island Dressing	3 ozs.

POTATOES

Potatoes, Au Gratin	6 ozs.
Potatoes, Baked	6 ozs. (2)
Potatoes, Boiled	6 ozs.
Potatoes, Candied Sweet	6 ozs.
Potatoes, Croquette	6 ozs. (2)
Potatoes, French Fried	6 ozs.
Potatoes, Fried Sweet	6 ozs.
Potatoes, Hashed Brown	6 ozs.
Potatoes, Hashed in Cream	6 ozs.
Potatoes, Julienne	6 ozs.
Potatoes, Lyonnaise	6 ozs.
Potatoes, Maitre d'Hotel	6 ozs.
Potatoes, Mashed	6 ozs.
Potatoes, Parisienne	6 ozs.
Potatoes, Saratoga	4 ozs.
Potatoes, Saute	6 ozs.
Potatoes, Souffle	4 ozs.
Potatoes, Southern Style	6 ozs.

CEREALS—BREAD ROLLS, TOAST, ETC.

Corn Flakes	4 ozs.
Cream of Wheat	4 ozs.
Grape Nuts	5 ozs.
Puffed Rice	1½ ozs.
Pep	4 ozs.
Puffed Wheat	1½ oz.
Muffets	1 cake
Quaker Oats	4 ozs.
H. O.	4 ozs.
Shredded Wheat	2 cakes, 4 ozs.
Wheatena	4 ozs.
Farina	4 ozs.
Toast, Buttered	4 ozs.
Toast, Cinnamon	4 ozs.
Toast, Cream	4 ozs.
Toast, Dry	4 ozs.
Toast, Milk	4 ozs.

CEREALS—BREAD ROLLS, TOAST, ETC. *(Continued)*

Crumpets	2—portion
Muffins, English	2—portion
Rolls	2—portion
Tea Cakes	2—portion

SHELL FISH

Clams, (half shell)	12 little neck or 8 soft
Clams, Cocktail	6 clams
Clams, Fried	12 little neck or 8 soft
Clams, Poulette	12 little neck or 8 soft
Clams, Roast	12 little neck or 8 soft
Clams, Steamed	12 little neck or 8 soft
Clams, Stewed	12 little neck or 8 soft
Crabs, Soft Shell	2—portion
Crabmeat, Cocktail	Same as lobster
Crabmeat, Salad	Same as lobster
Lobster, Broiled live Whole	24 ozs.
Lobster, Broiled live Half	12 ozs.
Lobster, Cocktail	4 ozs. lobster 1 oz. sauce
Lobster, Salad	4 ozs. lobster 1 oz. celery ½ egg
Oysters (half shell)	6 oysters
Oysters, Broiled with Bacon	6 oysters, 2 ozs. bacon
Oysters, Cocktail	6 oysters
Oysters, Cream Stew	7 oysters
Oysters, Fried	7 oysters
Oysters, Patties	4 oysters
Oysters, Poulette	12 oysters
Oysters, Roast	6 oysters
Oysters, Scalloped	10 oysters
Oysters, Steamed	6 oysters
Oysters, Stewed Milk	7 oysters
Scallops, Fried	8 small or 6 large
Shell Fish Salads	4 ozs. meat 1 oz. celery ½ egg H. B. 1 olive Mayonnaise
Shrimps, Cocktail	4 ozs. shrimps

RELISHES, HORS D'OEUVRES, ETC.

Antipaste	1 tin
Canape of Anchovies	4 ozs. toast, 1 oz. anchovies
Caviar	1 oz.
Caviar Canape	2 ozs. toast, 1 oz. caviar
Chili Sauce	2 ozs.
Chow Chow	2½ ozs.
Chutney	1 oz.
Hors d'œuvres varies	1 slice smoked salmon ½ hard-boiled egg 1 aspic of foie gras, 3 stuffed olives 1 sardine in oil 2 anchovies 1 piece celery stuffed with Roquefort Total weight, 6 ozs.
Melon Mangoes	2 mangoes
Olives, Ripe	8 olives
Olives, Green King or Queen	6 olives
Olives, Green Manzanilla	8 olives
Pickles, Assorted	2½ ozs.
Salted Almonds	1½ ozs.
Sardines, French, in Oil	4 fish, 3½ ozs.
Smoked Salmon	2½ ozs.
Smoked Salmon Canape	4 ozs. toast 1½ ozs. salmon
Tomato Chutney	2 ozs.
Tunny Fish in Oil	3 ozs.

POULTRY

Capon, Roast	2 ozs. white meat 5 ozs. black meat
Chicken, Boiled	2 ozs. white meat 5 ozs. black meat
Chicken in Casserole	2½ lbs. chicken, half or whole, as ordered
Chicken croquettes	2 croquettes, 8 ozs.
Chicken Cutlets	2 cutlets, 8 ozs.
Chicken, Fried, a la Maryland	8 ozs. chicken 1 oz. bacon 2 ozs. corn fritters 2 ozs. potato croquettes
Chicken Hash, with egg	4 ozs. black meat, 1 egg
Chicken, Hot Roast	2 ozs. white meat 5 ozs. black meat

POULTRY—*Continued*

Chicken, Minced in Bordure	3 ozs. black meat 3 ozs. potatoes
Chicken, Minced in Cream	3 ozs. black meat and cream
Chicken, Minced with Peppers	3 ozs. black meat ½ oz. pepper
Chicken, Minced with Poached Egg	3 ozs. black meat, 1 egg
Chicken, Pot Fried	7 inch baker 3 ozs. black meat 3 ozs. white meat
Chicken, Spring, Half, Broiled	½ bird, 8 ozs.
Chicken, Squab, Hot Roast	12 ozs.
Chicken, Squab, Whole, Broiled	1 bird, 12 ozs.
Duck, Game, Roast	½ bird, portion
Duckling, Hot Roast	7 ozs.
Duckling Salmis with Olives	6 ozs. duckling
Goose, Hot Roast	7 ozs.
Pigeon, Squab, Hot Roast	1 bird
Pigeon, Squab, Whole, Broiled	1 bird
Turkey, Boiled	2 ozs. white meat 5 ozs. black meat
Turkey, Hot Roast	2 ozs. white meat 5 ozs. black meat
Turkey Legs	6 ozs.
Turkey Wings	6 ozs.

COLD MEATS, ETC.

Assorted Cold Meats	1 slice beef, 4 ozs 1 slice ham, 1½ ozs. 1 slice tongue, 1 oz. 1 slice lamb, 1 oz. with chicken add slices 1 oz.
Beef	1 slice, 4 ozs.
Beef, Corned	4 slices, 6 ozs.
Chicken	3 ozs. leg, 3 ozs. wing
Chicken White Meat or Breast	2 ozs.
Chicken, Supreme of	2½ ozs. white meat 1½ ozs. foie gras, mayonnaise
Chicken and Ham	2½ ozs. ham 1½ ozs. chicken
Game Pate	5 ozs.
Galantine of Chicken or Capon	3 slices, 3 ozs.

COLD MEATS, ETC.—*Continued*

Goose	3 ozs. leg, 3 ozs. wing
Ham	3 slices, 4 ozs.
Ham, Virginia	3 slices, 4 ozs.
Ham, Westphalia	3 slices, 4 ozs.
Ham and Tongue	2½ ozs. ham 1½ ozs. tongue
Head Cheese with India Relish	4 ozs. head cheese 1½ ozs. relish
Leg of Chicken or Capon with Salad	4½ ozs. leg, 3½ ozs. salad
Mutton	3 slices, 4 ozs.
Pork, Leg of	3 slices, 4 ozs.
Pork, Loin of	3 chops, 4 ozs.
Tongue	4 slices, 3 ozs.
Turkey	3 ozs. leg, 3 ozs. wing
Turkey White Meat or Breast	2 ozs.
Turkey and Ham	2½ ozs. ham 1½ ozs. turkey
Veal and Ham Pie	1 slice, 4 ozs.

FISH

Bass, Sea	6 ozs.
Bass, Striped	6 ozs.
Bloaters	1 fish large or 2 small
Blue	6 ozs.
Cod	6 ozs.
Cod, Alaska Black, Fresh	6 ozs.
Cod, Alaska Black, Smoked	7 ozs.
Codfish, Cakes	2 ozs. fish, 3 ozs. potatoes
Codfish, In Cream	5 ozs.
Dore	7 ozs.
Eels	8 ozs.
Finnan Haddie	7 ozs.
Frogs' Legs	8 ozs.
Haddock	6 ozs.
Halibut	8 ozs.
Herring, Fresh	6 ozs.
Kingfish	8 ozs.
Kippers	2 small or 1 large
Mackerel	8 ozs.
Mackerel, Salt	6 ozs.
Mackerel, Spanish	7 ozs.
Perch	6 ozs.
Pompano	7 ozs.
Porgies	7 ozs.
Redsnapper	6 ozs.

FISH—*Continued*

Salmon	7 ozs.
Salmon, Cod, with Sliced Cucumber	5 ozs. fish, 3 slices cucumber
Shad	7 ozs.
Shad, Planked	7 ozs.
Shad Roe	2 ozs.
Smelts	5 fish, about 7 ozs.
Sole, English	7 ozs.
Sole, Filet	2 filet, 6 ozs.
Trout, Brook	3 fish, about 5 ozs.
Whitebait	6 ozs.
Whitefish	7 ozs.

CHOPS, CUTLETS, ETC.

Bacon, Broiled	5 slices, 5 ozs.
Bacon, Broiled, Extra Rasher	6 ozs.
Brains, Calves	3 ozs.
Calves' Liver and Bacon	4 ozs. liver, 2 ozs. bacon
Ham, Broiled	3 slices, 4 ozs.
Ham, Broiled, Extra Rasher	6 ozs.
Lamb Chops	2 chops, 5 ozs.
Lamb Fries	6 ozs.
Lamb Kidneys	3 kidneys
Lamb, Noisette of	(2) 5 ozs.
Lamb Steak, Broiled	7 ozs.
Mutton Chops	2 chops, 7 ozs.
Mutton Chops, English Style	10 ozs. including 1 kidney
Mutton Chops, English Double	20 ozs. including 1 kidney
Mixed Grill	1 lamb chop, 3 ozs. 1 kidney, 2 ozs. liver 2 ozs. sausage 1 slice tomato 1 only small mushroom 2 ozs. bacon
Pig's Feet (Hot or Cold)	1 foot
Pork Chops	2 small chops, 7 ozs.
Pork Tenderloin	7 ozs.
Sausage, Home Made	4 sausage, 6 ozs.
Sweetbreads, Plain Broiled	6 ozs.
Sweetbreads, with Virginia Ham	4 ozs. sweetbreads 2 ozs. Virginia ham
Veal Chops	1 chop—8 ozs.
Veal, Escalop of	8 ozs.

STEAKS, ETC.

Breakfast, Plain	6 ozs.
Chateaubriand	16 ozs.
Filet Mignon	6 ozs.
Minute	6 ozs.
Porterhouse	16 ozs.
Porterhouse, Extra (for two)	24 ozs.
Porterhouse, Extra (for three)	32 ozs.
Salisbury	8 ozs.
Sirloin, Single	8 ozs.
Sirloin, Double	16 ozs.
Sirloin, Extra	21 ozs.
Sirloin, Planked	9 ozs.
Sirloin, Planked, Extra	21 ozs.
T Bone	12 ozs.

SANDWICHES

Beef, Roast, Cold	3 ozs. bread, 4 ozs. beef
Beef, Roast, Hot	3 ozs. bread, 4 ozs. beef
Beef, Corned	3 ozs. bread, 2 ozs. beef
Cheese	5 ozs. bread, 2 ozs. cheese
Chicken	3 ozs. bread, 1 oz. of white meat of chicken
Club	3 ozs. bread, 1 oz. white meat of chicken, 2 ozs. bacon, 2 leaves lettuce, 2 slices tomato
Egg	3 ozs. bread, 1 hard-boiled or fried egg
Foie Gras	3 ozs. bread, 2 ozs. foie gras
Ham	3 ozs. bread, 2 ozs. ham
Lettuce	2 ozs. bread, 2 ozs. Julienne of lettuce
Sardine	3 ozs. bread, 3 sardines, 2½ ozs.
Tomato	3 ozs. bread, 3 ozs tomato
Tongue	3 ozs. bread, 2 ozs. tongue
Turkey	3 ozs. bread, 1 oz. white meat of turkey

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